

WEBENCH® Power Architect

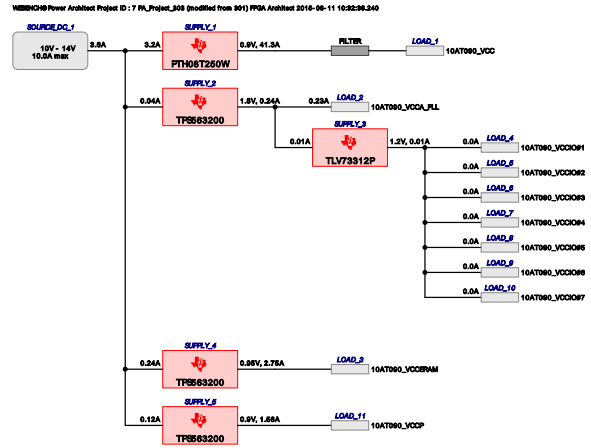
Project Report

Project : 1998766/7 : PA_Project_303 (modified from 301)
 Created : 2015-06-11 10:32:36.240
 Optimize project optFactor=3

Project Summary

1. Total System Efficiency	81.853 %
2. Total System BOM Count	37.0
3. Total System Footprint	2.006 kmm ²
4. Total System BOM Cost	\$0.00
5. Total System Power Dissipation	9.224 W

--> Launch WEBENCH Power Architect.



Power Supplies

#	Name	NSID	Description	Vout	Iout	Efficiency	Foot-print	Cost	Design	Page
1.	SUPPLY_1	PTH08T250W	Switcher : 50A, 4.5V to 14V Input,Wide Output, Adjustable Power Module	0.9 V	41.304 A	82.2%	1774	\$0.00	22	4
2.	SUPPLY_2	TPS563200	Switcher : 17V, 3A,6-pin, Low Iq Synchronous buck converter with Advanced Eco-mode	1.8 V	0.227 A	85.7%	74	\$1.38	24	13
3.	SUPPLY_3	TLV73312P	LDO : TLV733P Capacitor-Free 300-mA Low-Dropout Regulator	1.2 V	0.008 A	60.4%	10	\$0.19	23	9
4.	SUPPLY_4	TPS563200	Switcher : 17V, 3A,6-pin, Low Iq Synchronous buck converter with Advanced Eco-mode	0.95 V	2.747 A	77.4%	74	\$1.58	25	18
5.	SUPPLY_5	TPS563200	Switcher : 17V, 3A,6-pin, Low Iq Synchronous buck converter with Advanced Eco-mode	0.9 V	1.561 A	80.4%	74	\$1.58	26	23

Power Loads

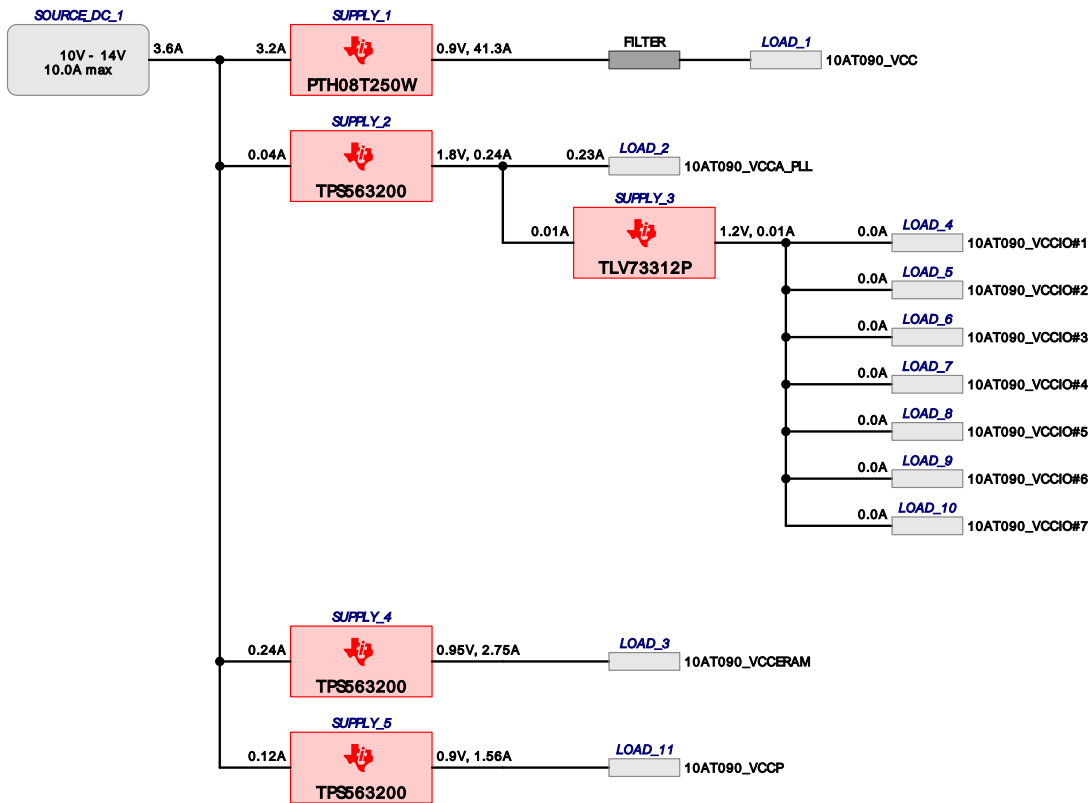
#	Name	VLoad	Iload	Description
1.	10AT090_VCC	0.9 V	41.304 A	VoutRipple=10%, Filter required
2.	10AT090_VCCA_PLL	1.8 V	0.227 A	VoutRipple=10%
3.	10AT090_VCCIO#1	1.2 V	0.001 A	VoutRipple=10%
4.	10AT090_VCCIO#2	1.2 V	0.001 A	VoutRipple=10%
5.	10AT090_VCCIO#3	1.2 V	0.001 A	VoutRipple=10%
6.	10AT090_VCCIO#4	1.2 V	0.001 A	VoutRipple=10%
7.	10AT090_VCCIO#5	1.2 V	0.002 A	VoutRipple=10%
8.	10AT090_VCCIO#6	1.2 V	0.001 A	VoutRipple=10%
9.	10AT090_VCCIO#7	1.2 V	0.001 A	VoutRipple=10%
10.	10AT090_VCCERAM	0.95 V	2.747 A	VoutRipple=10%
11.	10AT090_VCCP	0.9 V	1.561 A	VoutRipple=10%

FPGAs, Processors

#	Manufacturer	Part Number	Name	Series	Description
1.	Altera	10AT090	FPGA_1	Arria 10 GT	FPGA Altera Arria 10 GT 10AT090 http://www.altera.com/literature/hb/arria-10/a10_datasheet.pdf

Project Diagram

WEBENCH® Power Architect Project ID : 7_PA_Project_303 (modified from 301) FPGA Architect 2015-06-11 10:32:36.240



Electrical Procurement BOM

Manufacturer	Part Number	Description	Quantity	Budgetary Price	Footprint (mm ²)
AVX	08053C104KAT2A	0805	3	\$0.01	20
Panasonic	25SVPF180M	CAPSMT_62_E12	4	\$0.61	106
TDK	C1005X5R0J105M	0402	2	\$0.01	6
TDK	C3216JB0J686M	1206	2	\$0.32	22
Vishay-Dale	CRCW040210K0FKED	0402	3	\$0.01	9
Vishay-Dale	CRCW040213K7FKED	0402	1	\$0.01	3
Vishay-Dale	CRCW04021K82FKED	0402	1	\$0.01	3
Vishay-Dale	CRCW04022K49FKED	0402	1	\$0.01	3
CUSTOM	CUSTOM	CUSTOM	1	\$0.00	0
Panasonic	ERJ-6ENF5362V	0805	1	\$0.01	7
Panasonic	ETPF1000M5H	7343-40	1	\$1.17	59
Coiltronics	FP1006R1-R10-R	FP1006	1	\$0.84	122
MuRata	GRM188R71C105KA12D	0603	2	\$0.01	5
MuRata	GRM31CR60J476ME19L	1206	1	\$0.12	11
MuRata	GRM32ER61E226KE15L	1210	8	\$0.16	59
Texas Instruments	PTH08T250WAD	ECT0022A	1	\$45.74	1,133
Texas Instruments	TLV73312PDQNR	DQN0004A	1	\$0.17	4
Texas Instruments	TPS563200DDCR	DDC0006A	3	\$0.52	31
Coilcraft	XFL4020-152MEB	XFL4020	2	\$0.55	50
Coilcraft	XFL4020-222MEB	XFL4020	1	\$0.55	25
Total			37	\$55.27	1,678



VinMin = 10.0V
 VinMax = 14.0V
 Vout = 0.9V
 Iout = 41.3A

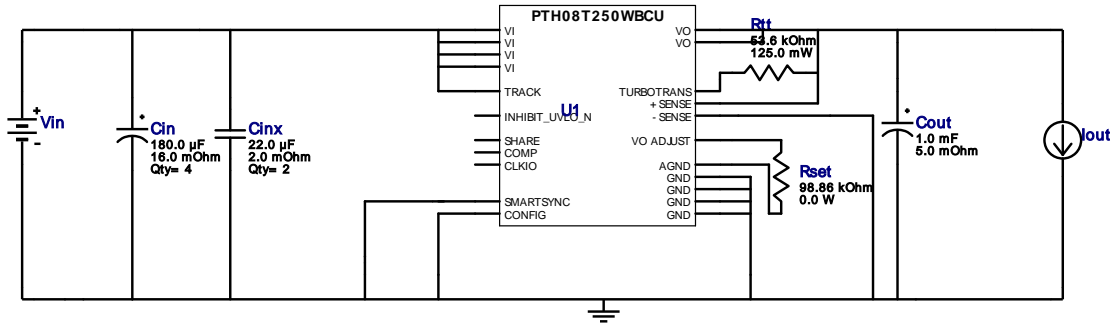
Device = PTH08T250WAD
 Topology = Buck
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 BOM Cost = \$0.00
 Footprint = 1,643.0 mm²
 BOM Count = 10
 Total Pd = 7.58W

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


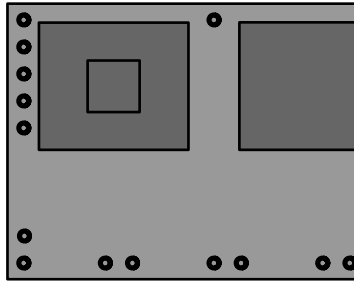
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 PTH08T250WAD 10.0V-14.0V to .90V @ 41.304A

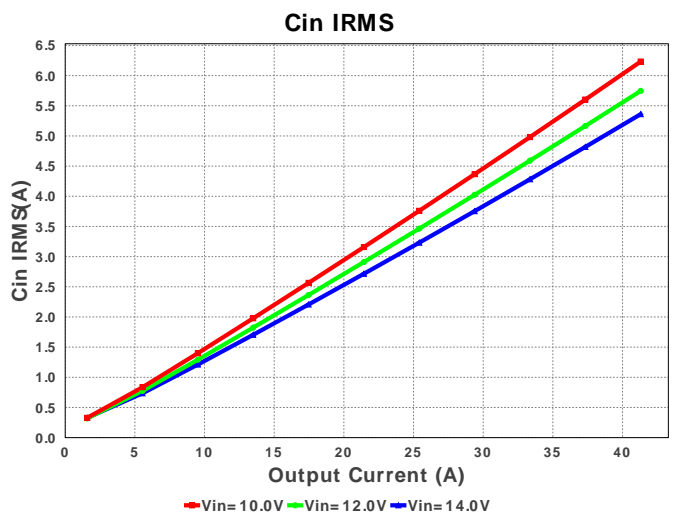
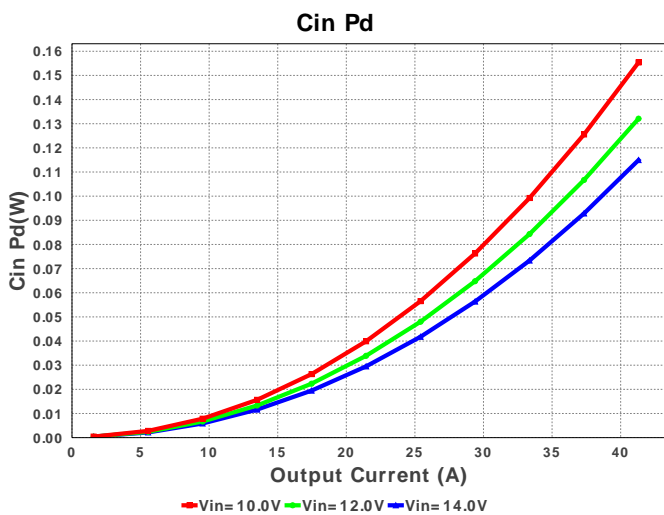
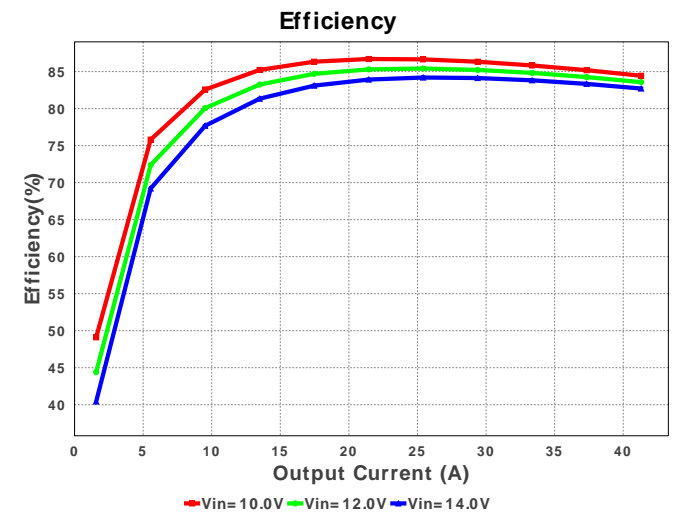
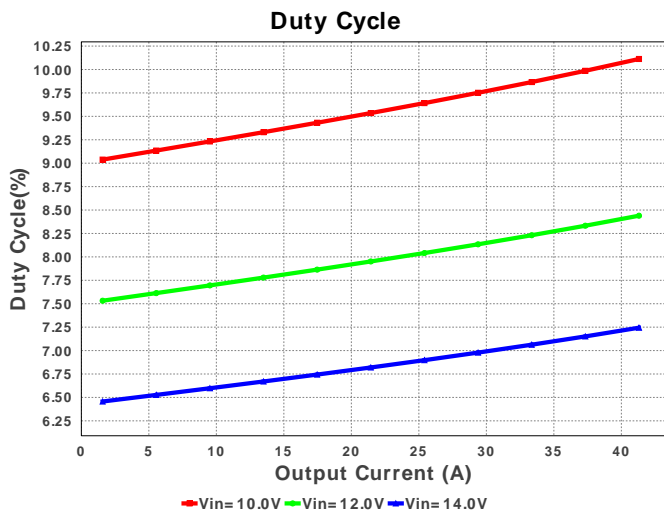
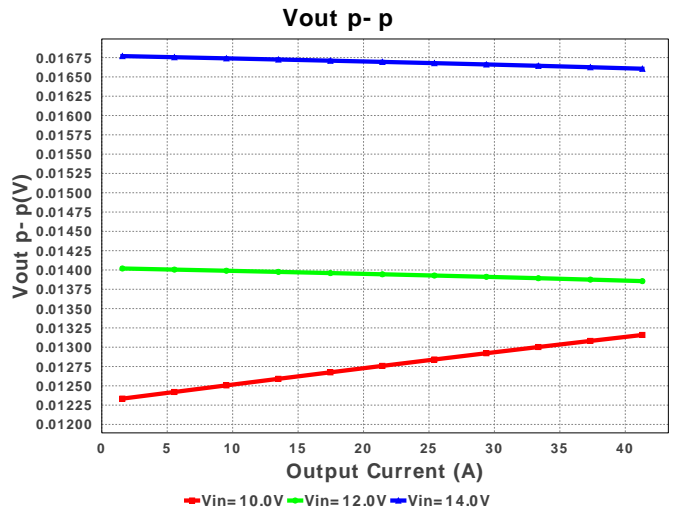
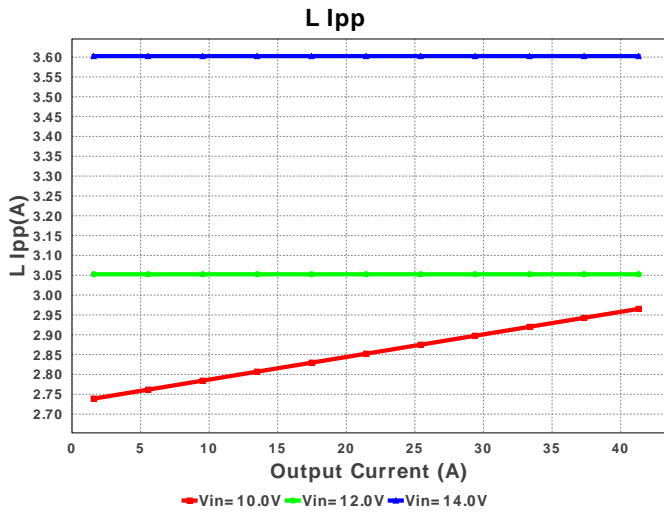
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 VinMax = 14.0V

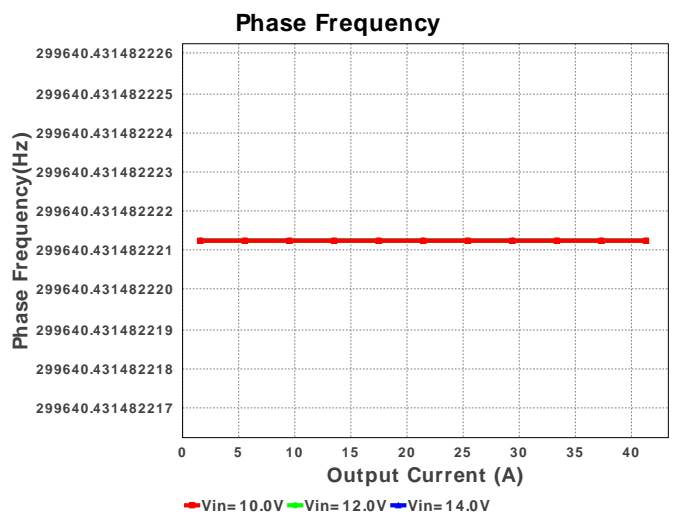
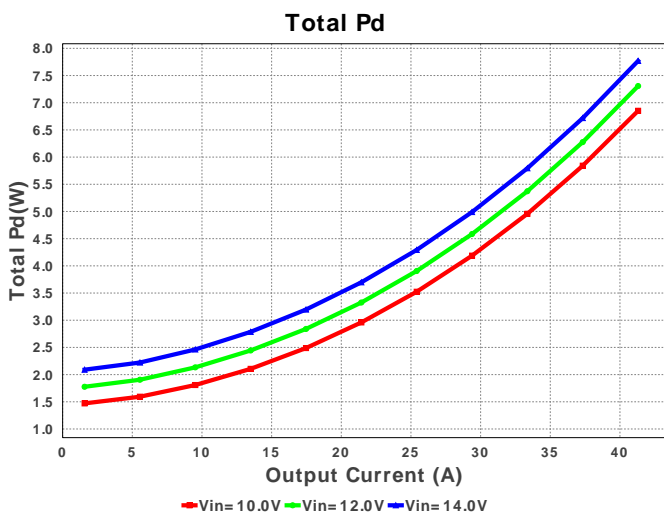
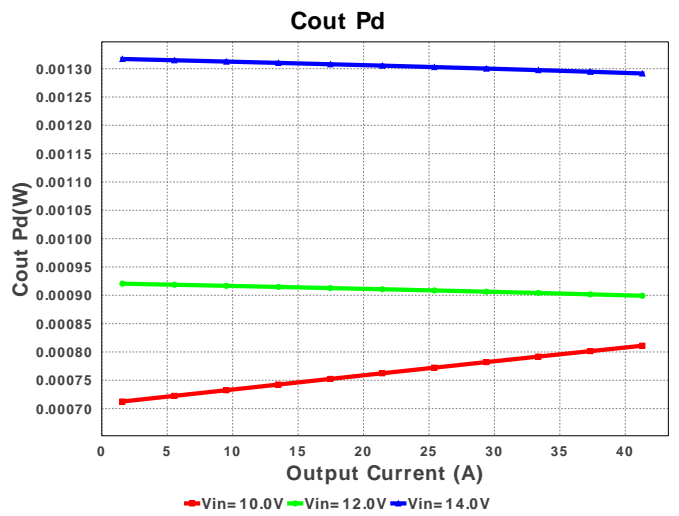
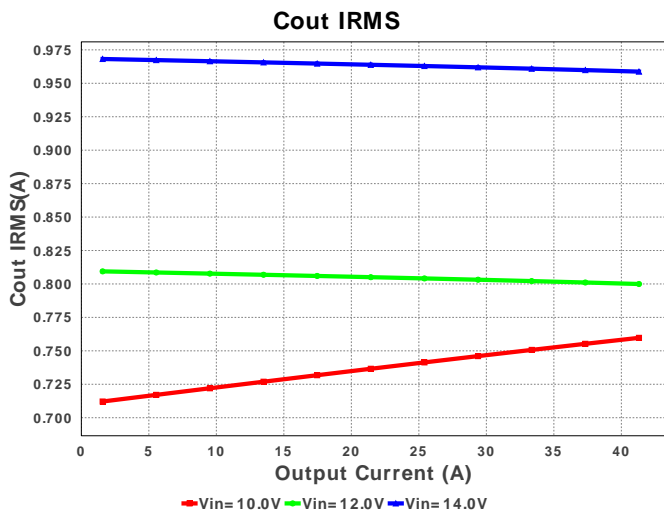
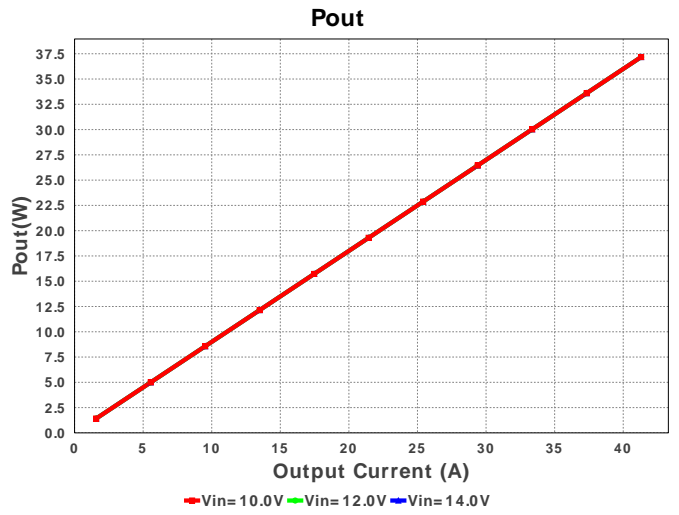
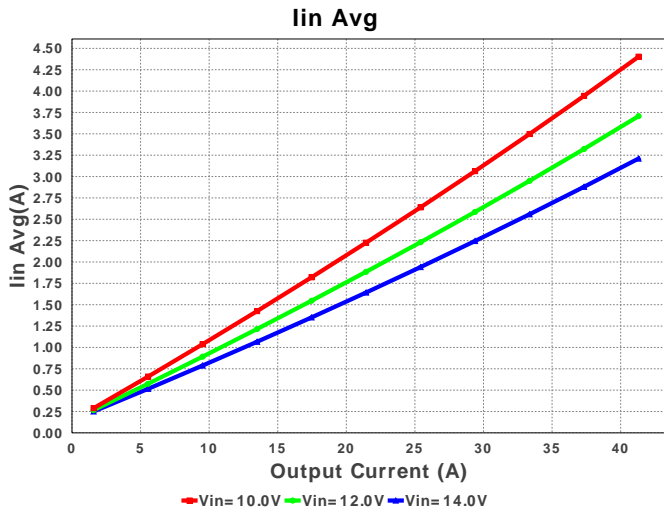
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 Iout = 41.3A

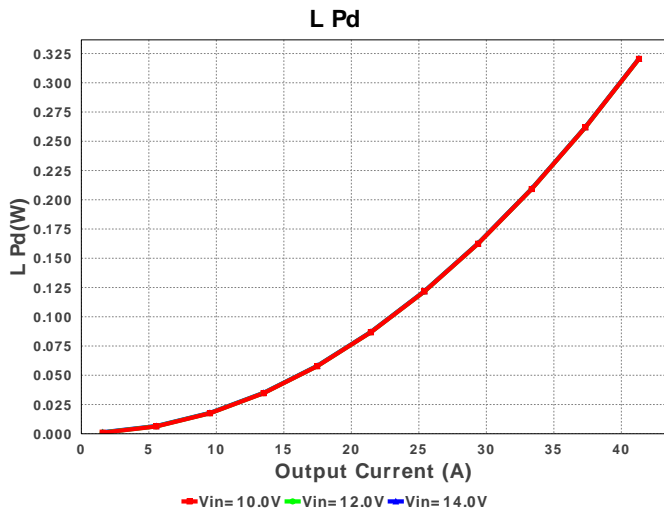
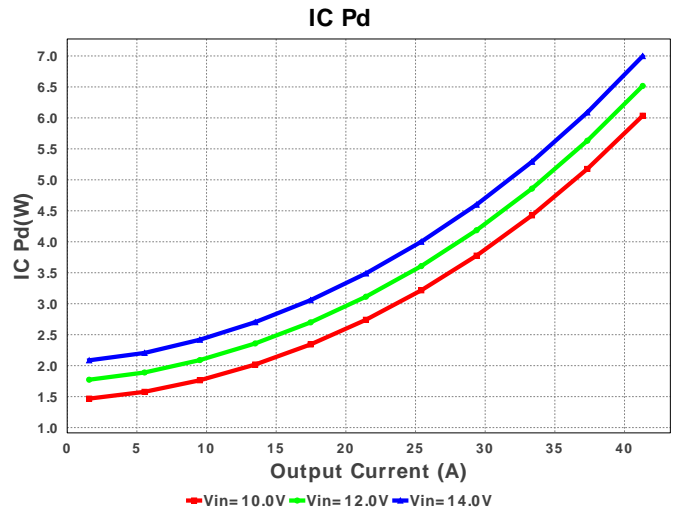
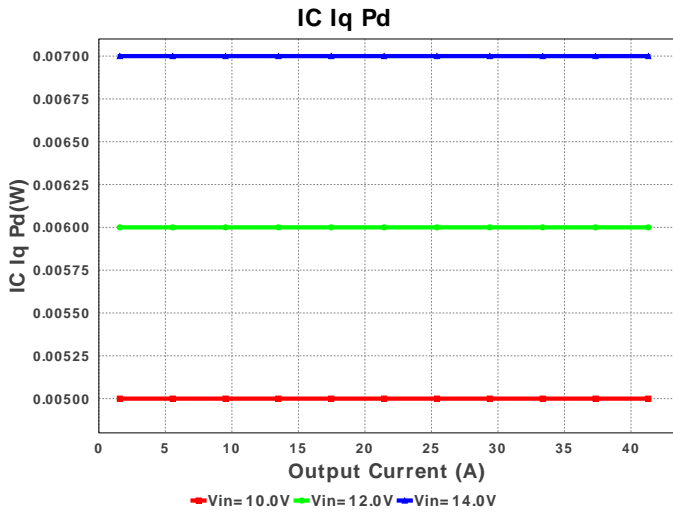


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cin	Panasonic	25SVPF180M Series= 1273	Cap= 180.0 uF ESR= 16.0 mOhm VDC= 25.0 V IRMS= 4.65 A	4	\$0.61	 CAPSMT_62_E12 106 mm ²
2.	Cinx	MuRata	GRM32ER61E226KE15L Series= X5R	Cap= 22.0 uF ESR= 2.0 mOhm VDC= 25.0 V IRMS= 3.67 A	2	\$0.16	 1210 15 mm ²
3.	Cout	Panasonic	ETPF1000M5H Series= 1282	Cap= 1.0 mF ESR= 5.0 mOhm VDC= 2.5 V IRMS= 6.1 A	1	\$1.17	 7343-40 59 mm ²
4.	Rset	CUSTOM	CUSTOM Series= ?	Res= 98.86 kOhm Power= 0.0 W Tolerance= 0.0%	1	NA	CUSTOM 0 mm ²
5.	Rtt	Panasonic	ERJ-6ENF5362V Series= 225	Res= 53.6 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
6.	U1	Texas Instruments	PTH08T250WAD	Switcher	1	\$45.74	 ECT0022A 1133 mm ²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	5.35 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	959.122 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	3.197 A	Current	Average input current
4.	L Ipp	3.602 A	Current	Peak-to-peak inductor ripple current
5.	BOM Count	10	General	Total Design BOM count
6.	FootPrint	1.643 k mm ²	General	Total Foot Print Area of BOM components
7.	Frequency	599.281 kHz	General	Switching frequency
8.	IC Tolerance	20.0 mV	General	IC Feedback Tolerance
9.	Phase Frequency	299.64 kHz	General	Frequency per phase
10.	Pout	37.174 W	General	Total output power
11.	Total BOM	\$0.0	General	Total BOM Cost
12.	Vout OP	900.0 mV	Op_Point	Operational Output Voltage
13.	Duty Cycle	7.212 %	Op_point	Duty cycle
14.	Efficiency	83.058 %	Op_point	Steady state efficiency
15.	IOUT_OP	41.304 A	Op_point	Iout operating point
16.	VIN_OP	14.0 V	Op_point	Vin operating point
17.	Vout p-p	16.612 mV	Op_point	Peak-to-peak output ripple voltage
18.	Cin Pd	114.476 mW	Power	Input capacitor power dissipation
19.	Cout Pd	1.293 mW	Power	Output capacitor power dissipation
20.	IC Iq Pd	7.0 mW	Power	IC Iq Pd
21.	IC Pd	6.811 W	Power	IC power dissipation
22.	L Pd	320.69 mW	Power	Inductor power dissipation
23.	Total Pd	7.583 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	41.304	Maximum Output Current
2.	Iout1	41.304	Output Current #1
3.	VinMax	14.0	Maximum input voltage
4.	VinMin	10.0	Minimum input voltage

#	Name	Value	Description
5.	Vout	900.0 m	Output Voltage
6.	Vout1	900.0 m	Output Voltage #1
7.	base_pn	PTH08T250W	Texas Instruments Base Part Number
8.	source	DC	Input Source Type
9.	ta	30.0	Ambient temperature

Design Assistance

1. PTH08T250W Product Folder : <http://www.ti.com/product/PTH08T250W> : contains the data sheet and other resources.

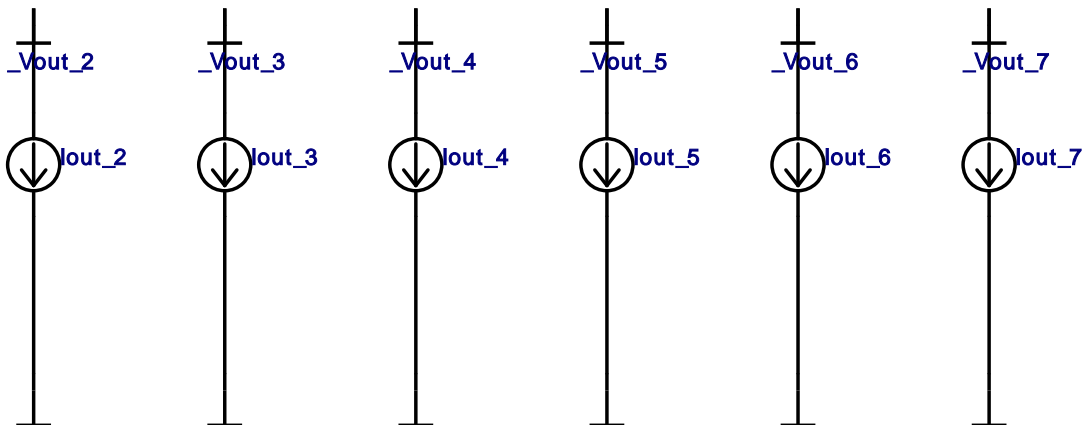
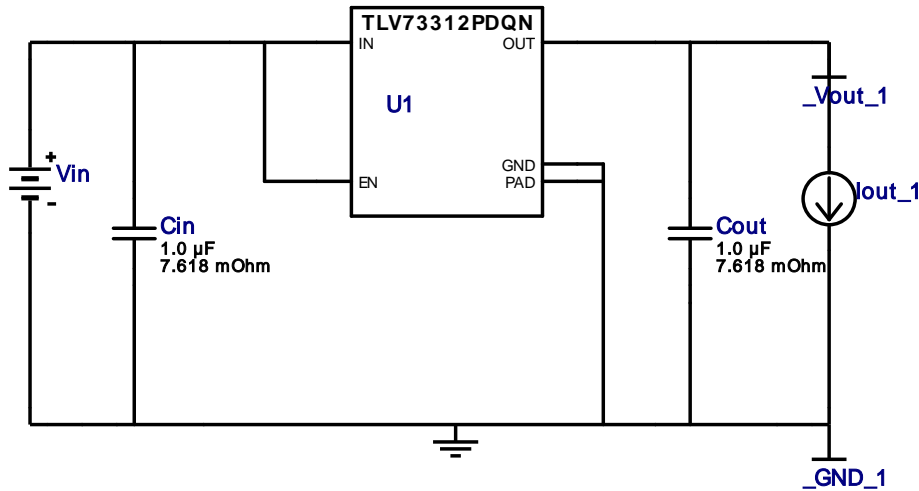


VinMin = 1.62V
 VinMax = 1.98V
 Vout = 1.2V
 Iout = 0.01A

Device = TLV73312PDQNR
 Topology = LDO
 Created = 6/11/15 10:32:34 AM
 BOM Cost = \$0.19
 Footprint = 10.0 mm²
 BOM Count = 3
 Total Pd = 0.01W

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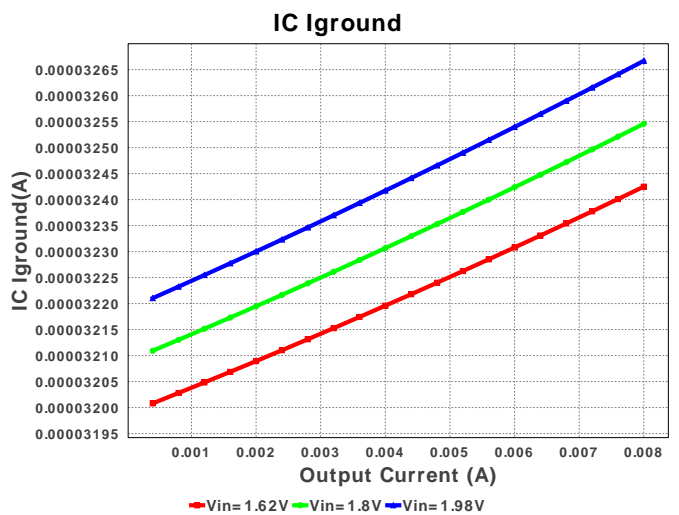
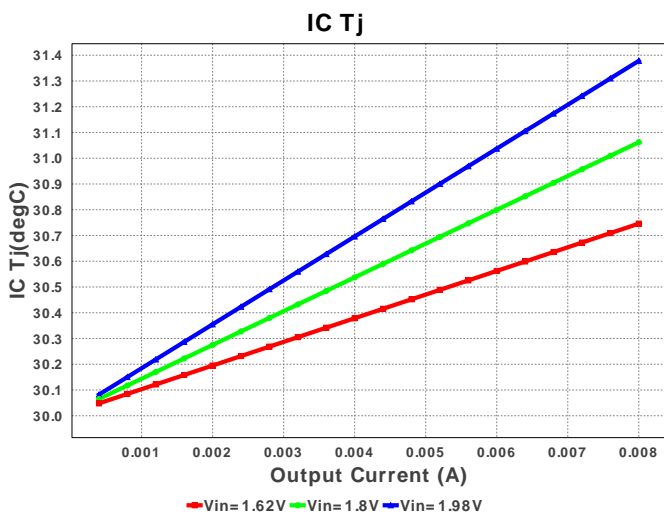
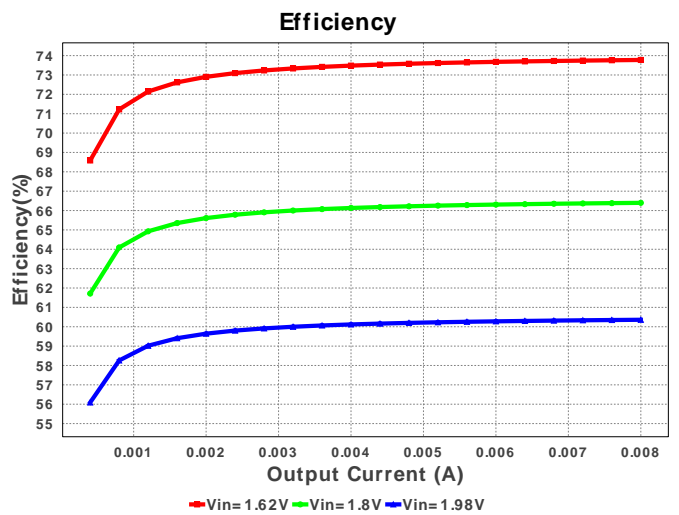
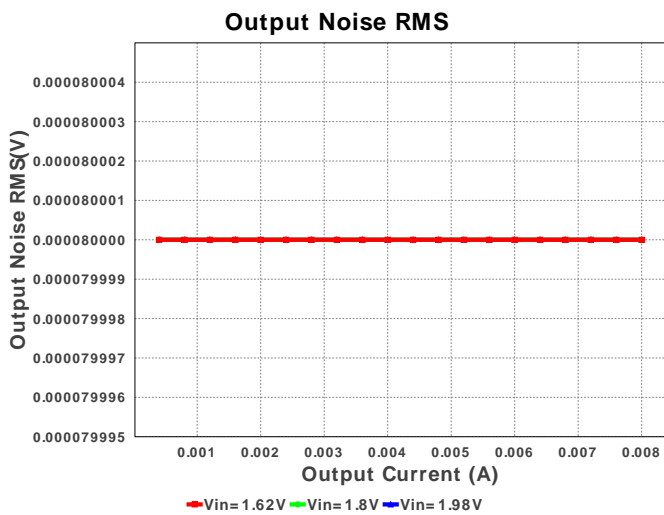
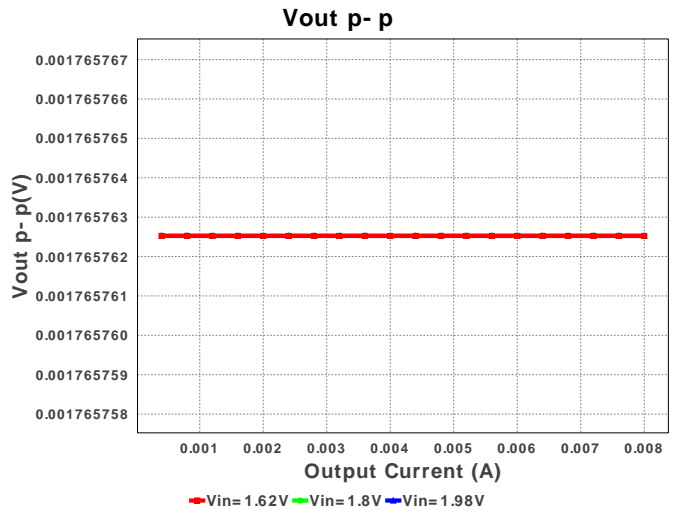
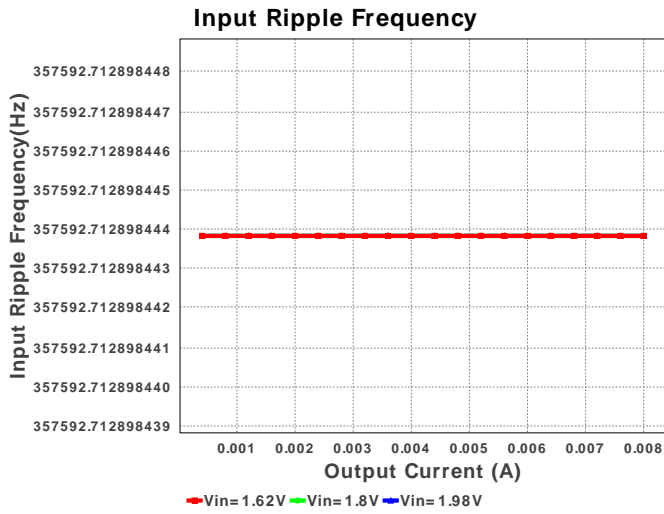
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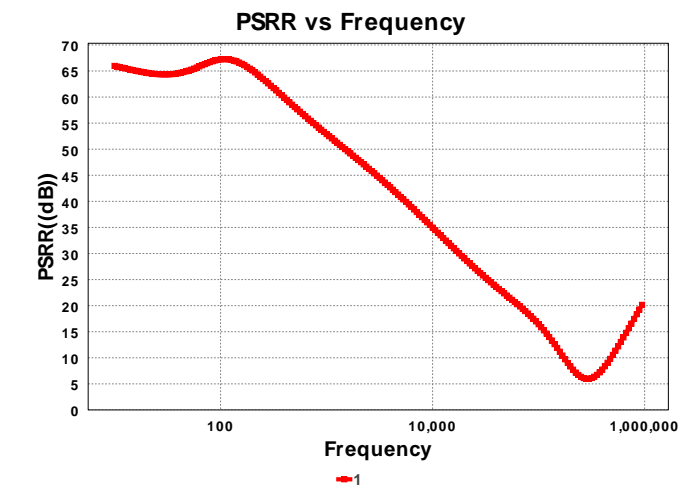
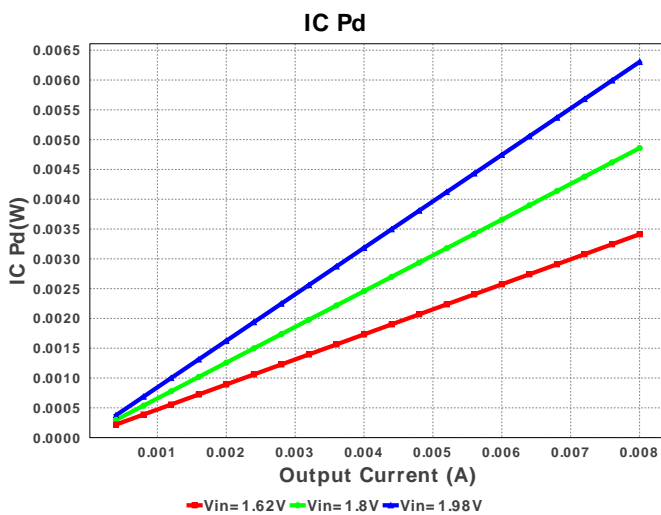
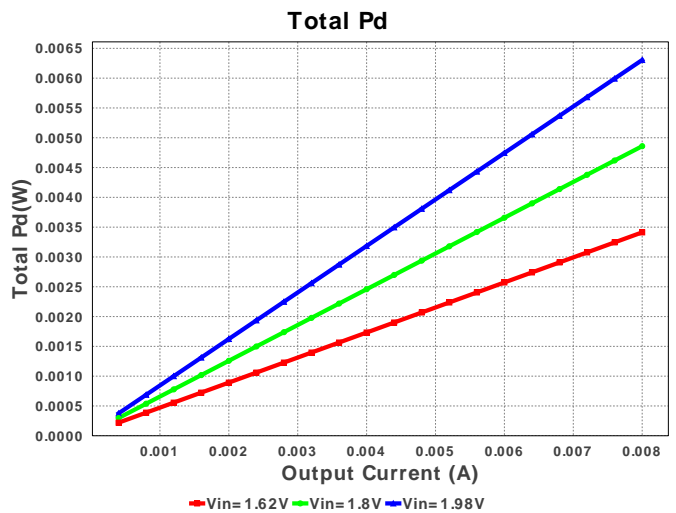
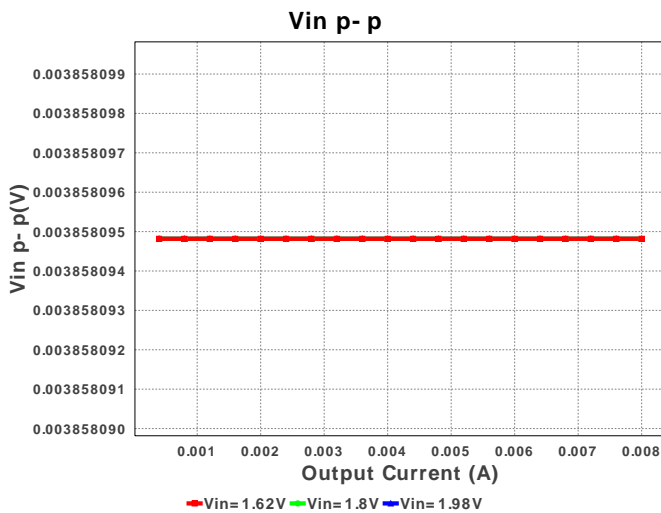
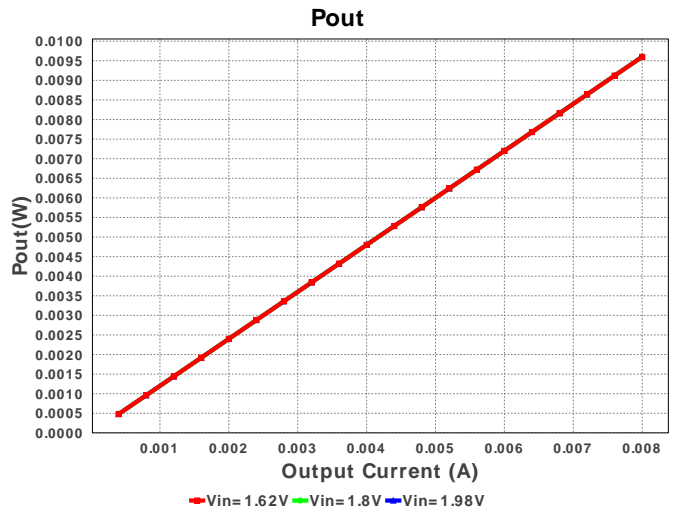
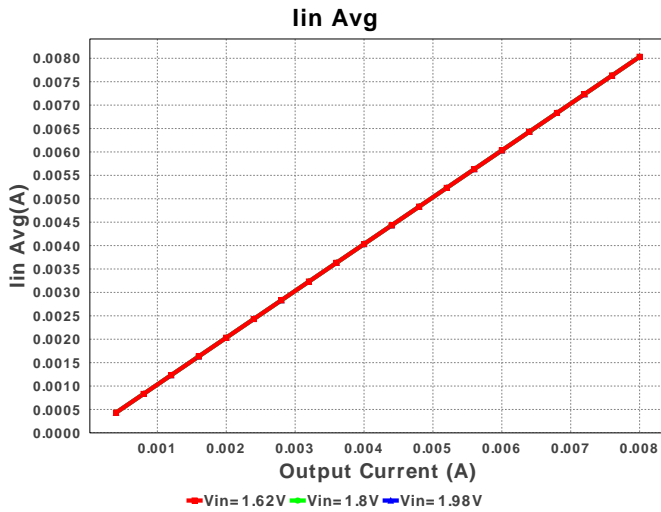


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cin	TDK	C1005X5R0J105M Series= X5R	Cap= 1.0 uF ESR= 7.618 mOhm VDC= 6.3 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²
2.	Cout	TDK	C1005X5R0J105M Series= X5R	Cap= 1.0 uF ESR= 7.618 mOhm VDC= 6.3 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
3.	U1	Texas Instruments	TLV73312PDQNR	Switcher	1	\$0.17	□ DQN0004A 4 mm ²





Operating Values

#	Name	Value	Category	Description
1.	IC Iground	32.667 μ A	Current	IC ground current
2.	Iin Avg	8.033 mA	Current	Average input current
3.	BOM Count	3	General	Total Design BOM count
4.	FootPrint	10.0 mm ²	General	Total Foot Print Area of BOM components
5.	IC Tolerance	16.8 mV	General	IC Feedback Tolerance
6.	Output Noise RMS	80.0 μ V	General	Noise RMS
7.	Pout	9.6 mW	General	Total output power
8.	Total BOM	\$0.19	General	Total BOM Cost
9.	Vin p-p	3.858 mV	Op_Point	Input Source ripple voltage
10.	Efficiency	60.36 %	Op_point	Steady state efficiency
11.	IC Tj	31.378 degC	Op_point	IC junction temperature

#	Name	Value	Category	Description
12.	ICThetaJA	218.6 degC/W	Op_point	IC junction-to-ambient thermal resistance
13.	IOUT_OP	8.0 mA	Op_point	Iout operating point
14.	Input Ripple Frequency	357.593 kHz	Op_point	Input Source Ripple Frequency for PSRR Calculation
15.	PSRR est.	-6.789 dB	Op_point	Power Supply Rejection Ratio, estimated
16.	VIN_OP	1.98 V	Op_point	Vin operating point
17.	Vout p-p	1.766 mV	Op_point	Peak-to-peak output ripple voltage
18.	IC Pd	6.305 mW	Power	IC power dissipation
19.	Total Pd	6.305 mW	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	8.0 m	Maximum Output Current
2.	Iout1	8.0 m	Output Current #1
3.	VinMax	1.98	Maximum input voltage
4.	VinMin	1.62	Minimum input voltage
5.	Vout	1.2	Output Voltage
6.	Vout1	1.2	Output Voltage #1
7.	base_pn	TLV73312P	Texas Instruments Base Part Number
8.	source	DC	Input Source Type
9.	ta	30.0	Ambient temperature

Design Assistance

-
- TLV73312P Product Folder : <http://www.ti.com/product/TLV733> : contains the data sheet and other resources.

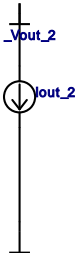
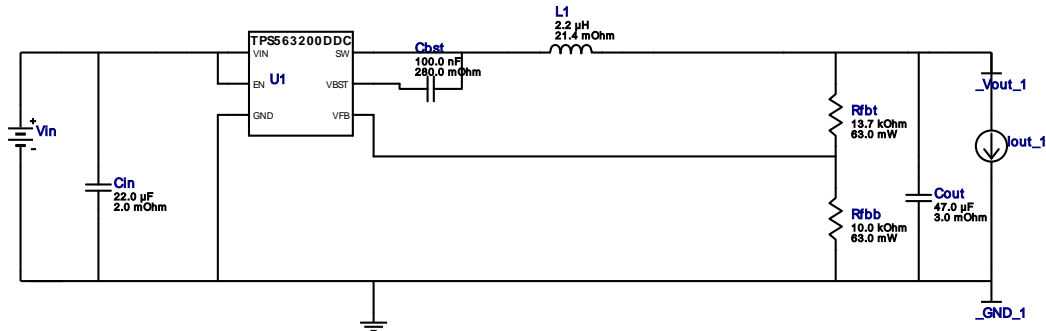


VinMin = 10.0V
 VinMax = 14.0V
 Vout = 1.8V
 Iout = 0.24A

Device = TPS563200DDCR
 Topology = Buck
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 BOM Cost = \$1.38
 Footprint = 74.0 mm²
 BOM Count = 7
 Total Pd = 0.07W

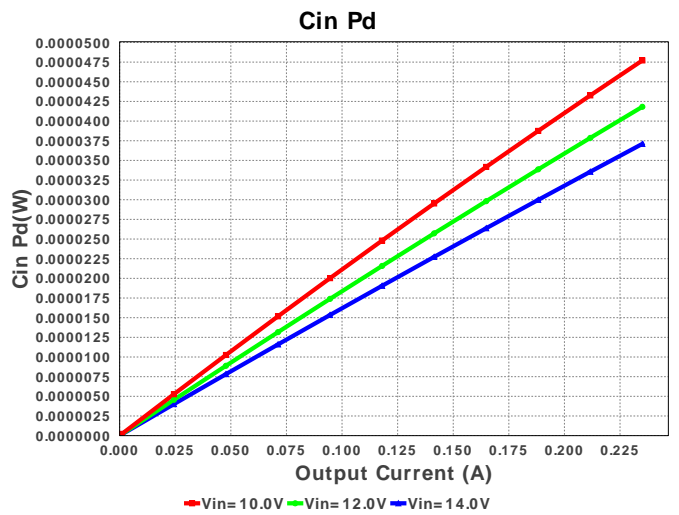
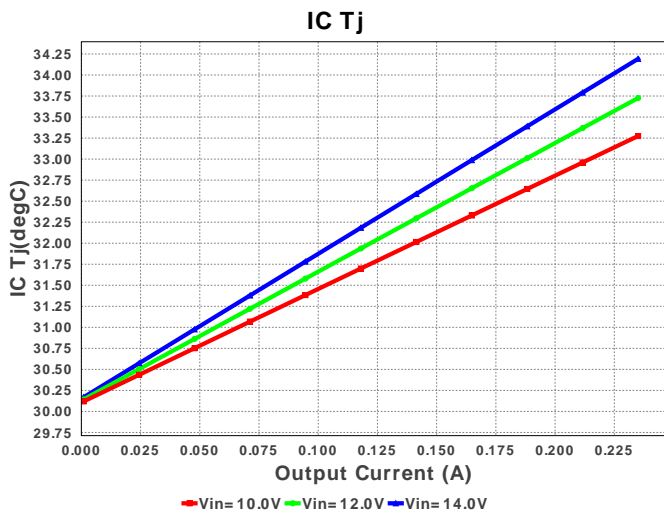
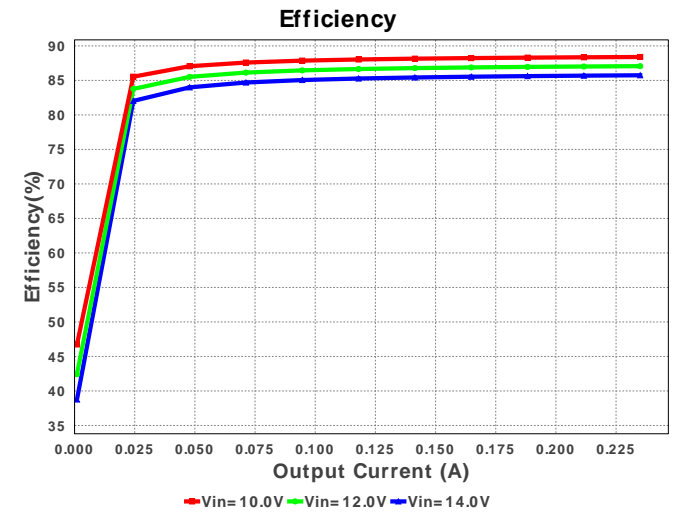
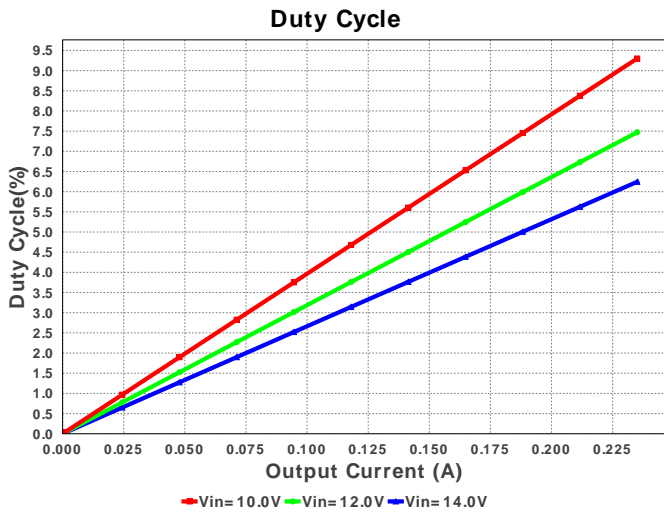
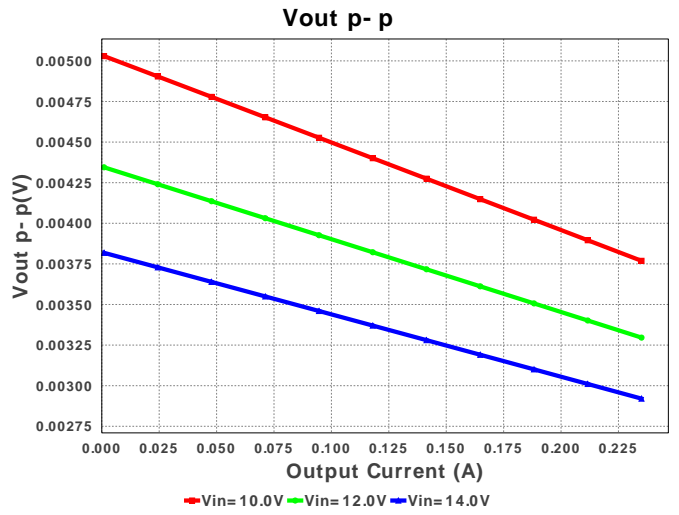
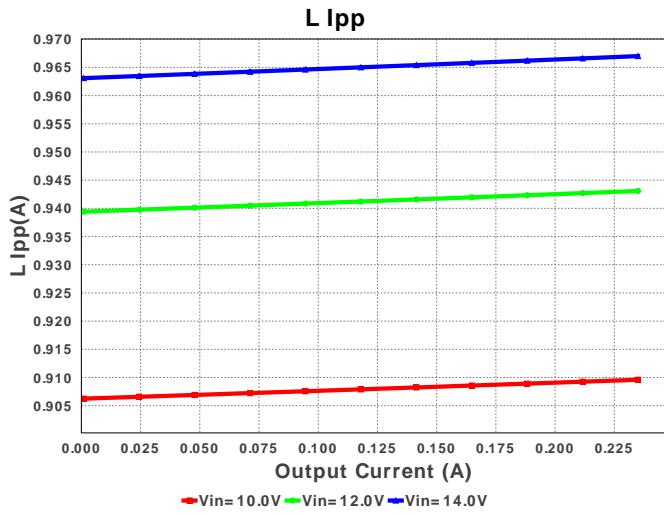
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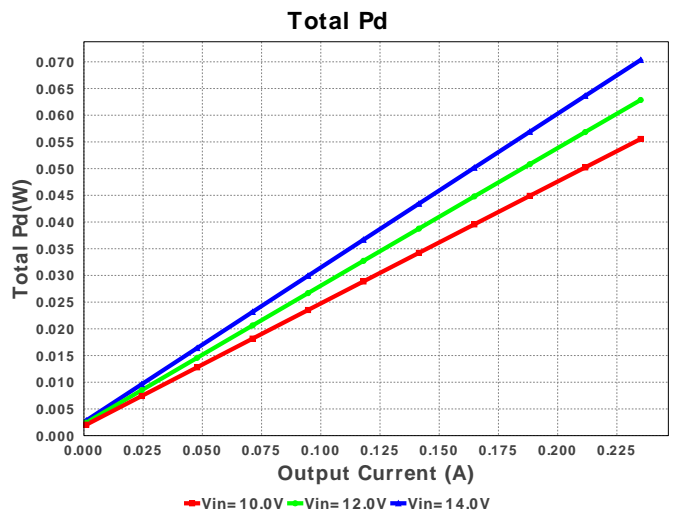
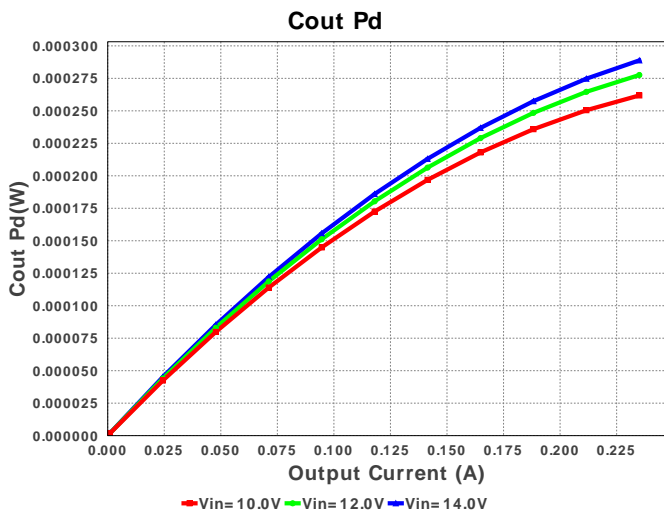
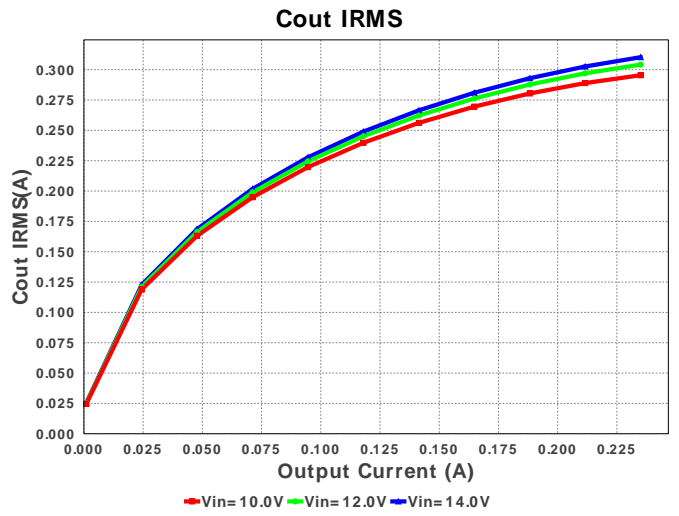
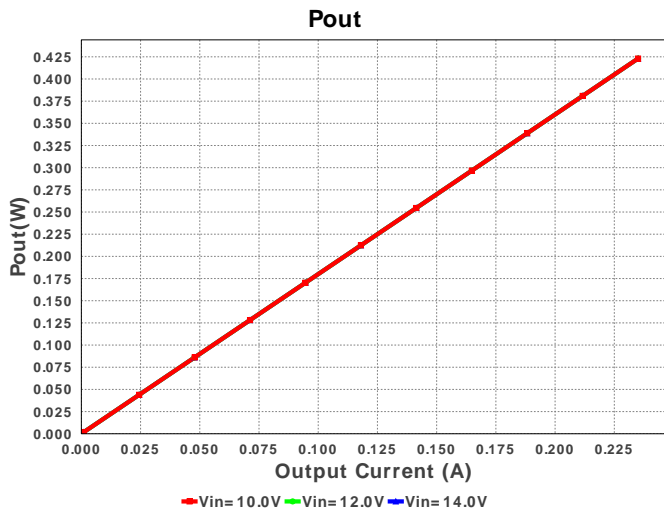
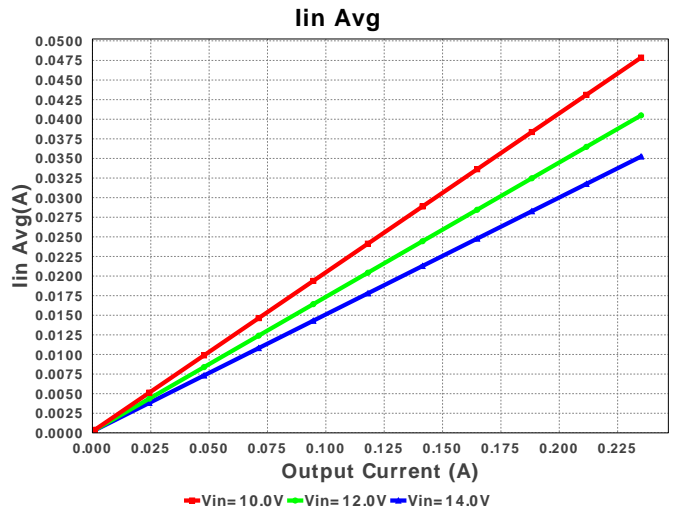
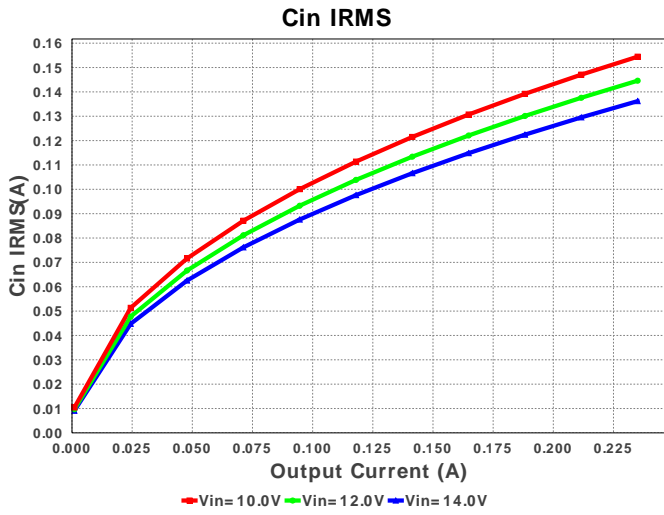
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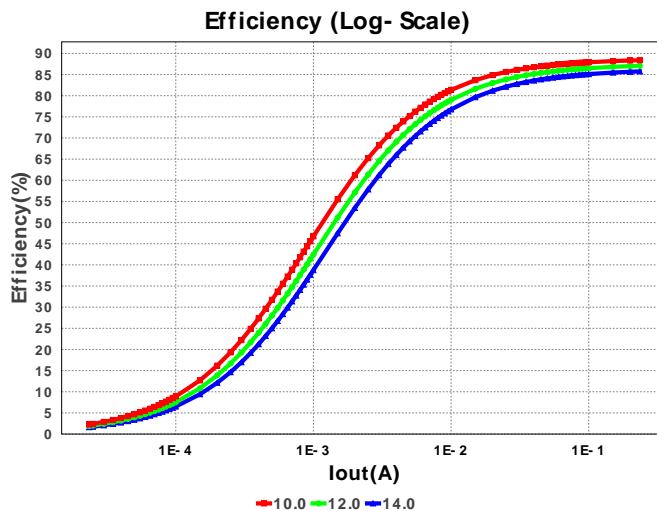
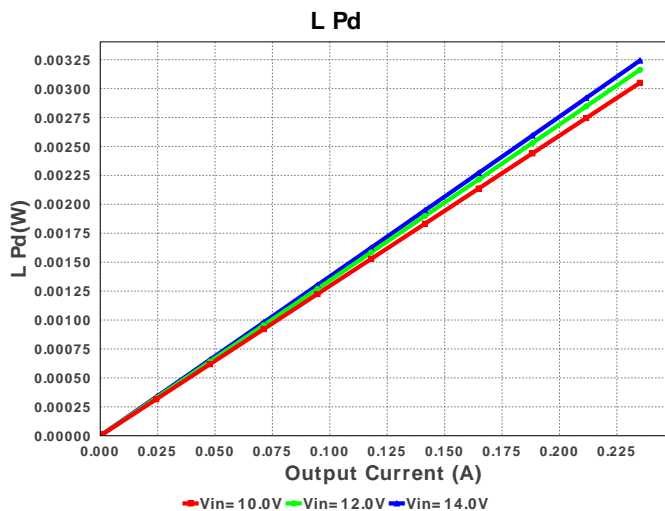
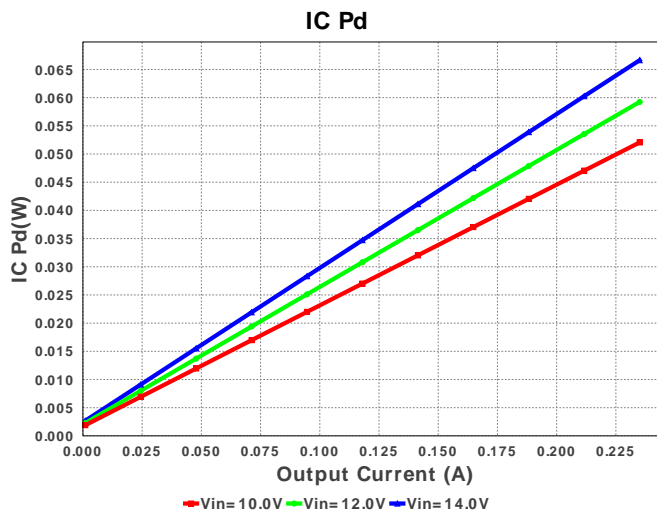
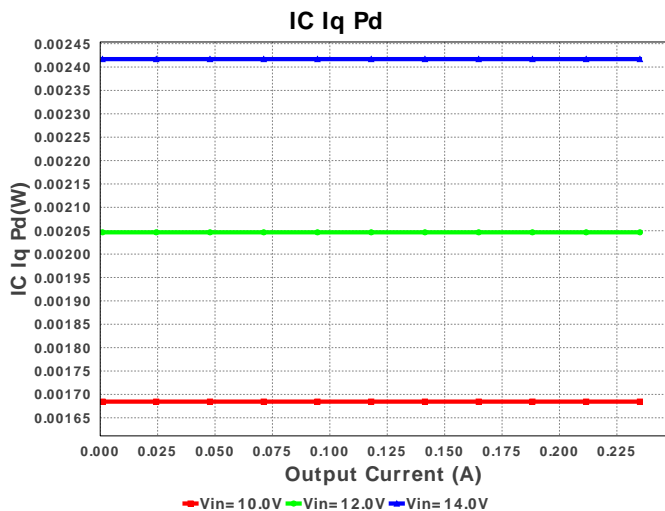


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbst	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
2.	Cin	MuRata	GRM32ER61E226KE15L Series= X5R	Cap= 22.0 uF ESR= 2.0 mOhm VDC= 25.0 V IRMS= 3.67 A	1	\$0.16	1210 15 mm ²
3.	Cout	MuRata	GRM31CR60J476ME19L Series= X5R	Cap= 47.0 uF ESR= 3.0 mOhm VDC= 6.3 V IRMS= 0.0 A	1	\$0.12	1206 11 mm ²
4.	L1	Coilcraft	XFL4020-222MEB	L= 2.2 uH DCR= 21.4 mOhm	1	\$0.55	XFL4020 25 mm ²
5.	Rfbb	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
6.	Rfbt	Vishay-Dale	CRCW040213K7FKED Series= CRCW..e3	Res= 13.7 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
7.	U1	Texas Instruments	TPS563200DDCR	Switcher	1	\$0.52	DDC0006A 10 mm ²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	136.199 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	310.285 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	35.243 mA	Current	Average input current
4.	L Ipp	967.0 mA	Current	Peak-to-peak inductor ripple current
5.	BOM Count	7	General	Total Design BOM count
6.	FootPrint	74.0 mm ²	General	Total Foot Print Area of BOM components
7.	Frequency	357.593 kHz	General	Switching frequency
8.	Pout	423.054 mW	General	Total output power
9.	Total BOM	\$1.38	General	Total BOM Cost
10.	Vout OP	1.8 V	Op_Point	Operational Output Voltage
11.	Duty Cycle	6.244 %	Op_point	Duty cycle
12.	Efficiency	85.743 %	Op_point	Steady state efficiency
13.	IC Tj	34.192 degC	Op_point	IC junction temperature
14.	ICThetaJA	62.9 degC/W	Op_point	IC junction-to-ambient thermal resistance
15.	IOUT_OP	235.03 mA	Op_point	Iout operating point
16.	VIN_OP	14.0 V	Op_point	Vin operating point
17.	Vout p-p	3.858 mV	Op_point	Peak-to-peak output ripple voltage
18.	Cin Pd	37.101 μW	Power	Input capacitor power dissipation
19.	Cout Pd	288.831 μW	Power	Output capacitor power dissipation
20.	IC Iq Pd	2.417 mW	Power	IC Iq Pd
21.	IC Pd	66.641 mW	Power	IC power dissipation
22.	L Pd	3.242 mW	Power	Inductor power dissipation
23.	Total Pd	70.344 mW	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	235.03 m	Maximum Output Current
2.	Iout1	235.03 m	Output Current #1
3.	VinMax	14.0	Maximum input voltage
4.	VinMin	10.0	Minimum input voltage

#	Name	Value	Description
5.	Vout	1.8	Output Voltage
6.	Vout1	1.8	Output Voltage #1
7.	base_pn	TPS563200	Texas Instruments Base Part Number
8.	source	DC	Input Source Type
9.	ta	30.0	Ambient temperature

Design Assistance

1. TPS563200 Product Folder : <http://www.ti.com/product/TPS563200> : contains the data sheet and other resources.

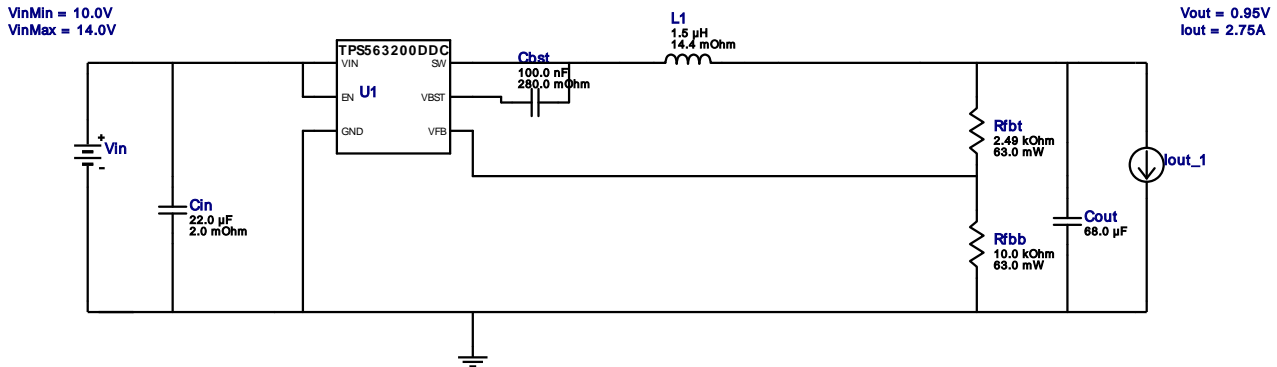


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 VinMax = 14.0V
 Vout = 0.95V
 Iout = 2.75A








Device = TPS563200DDCR
 Topology = Buck
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 BOM Count = 7
 Total Pd = 0.76W

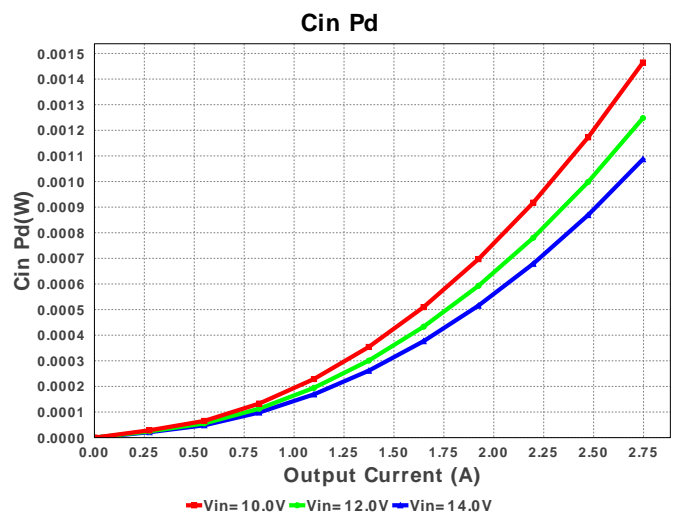
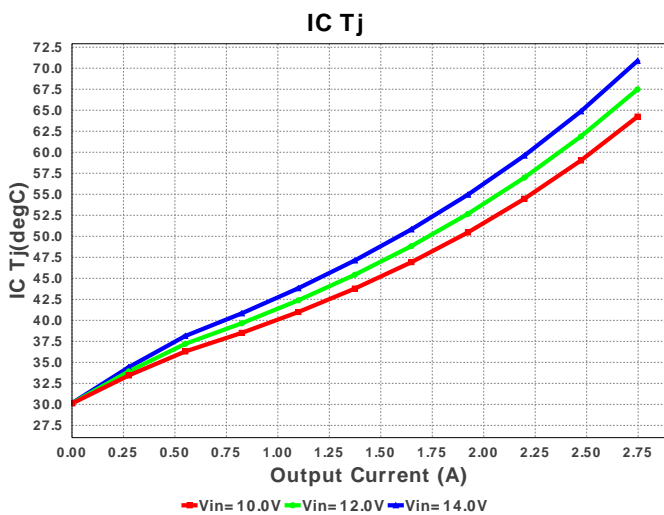
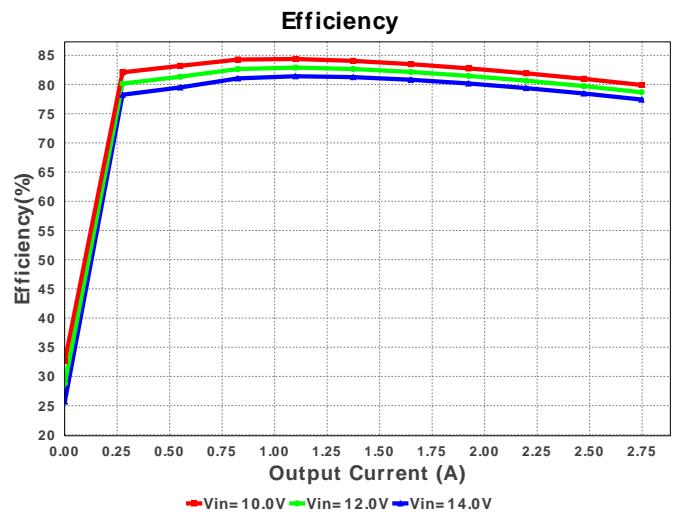
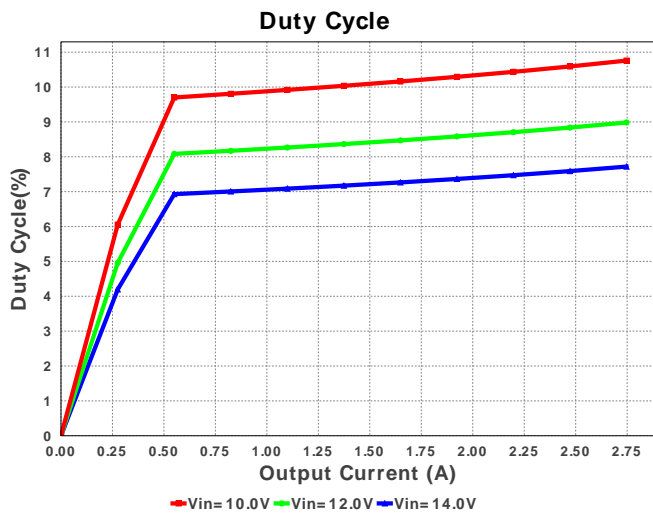
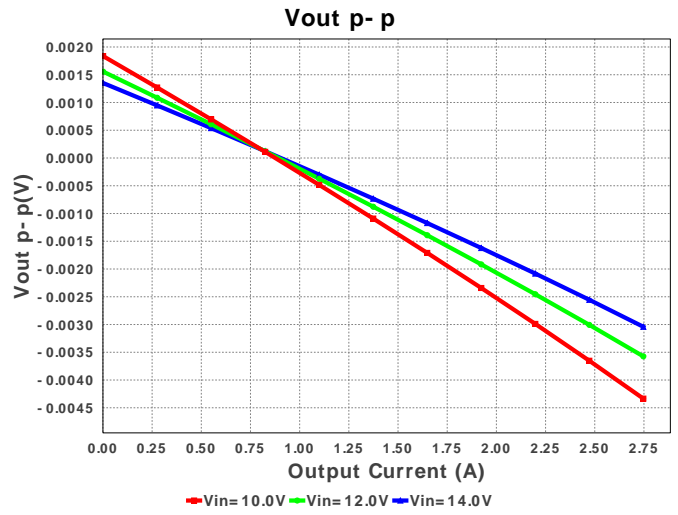
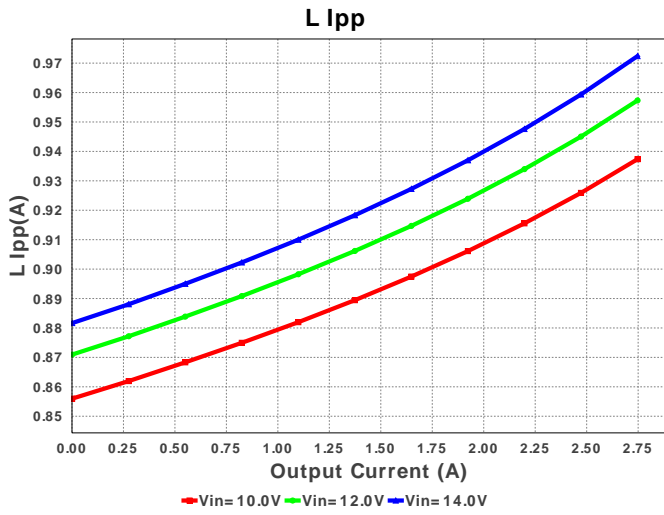
WEBENCH® Design Report

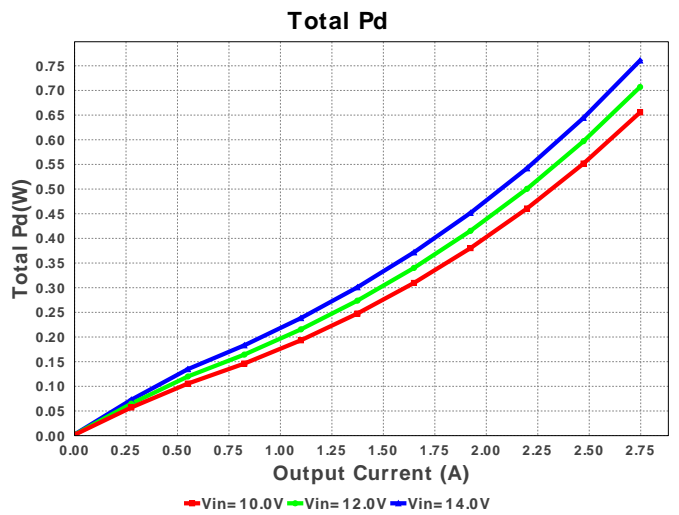
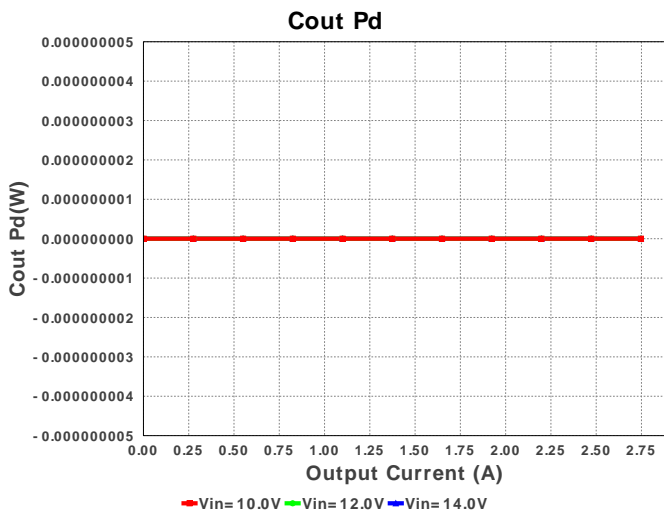
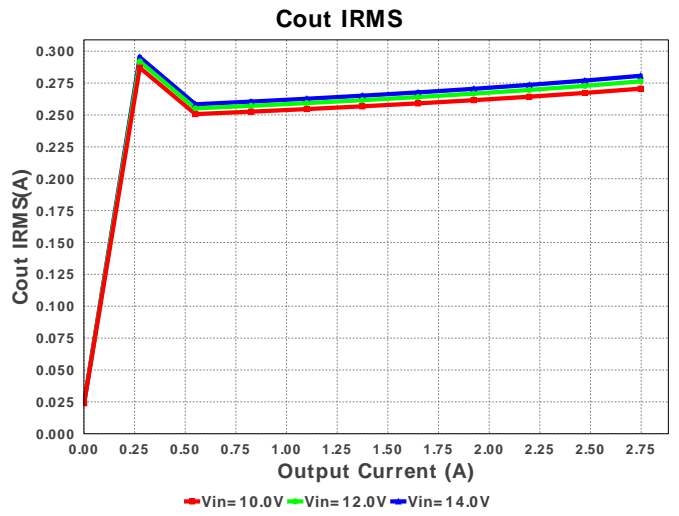
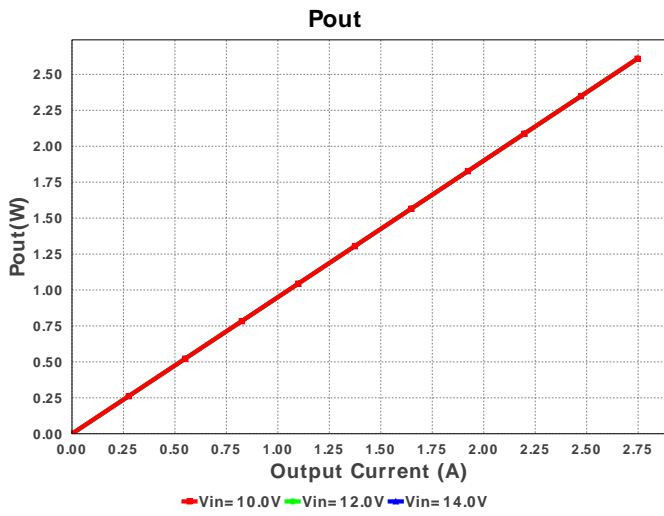
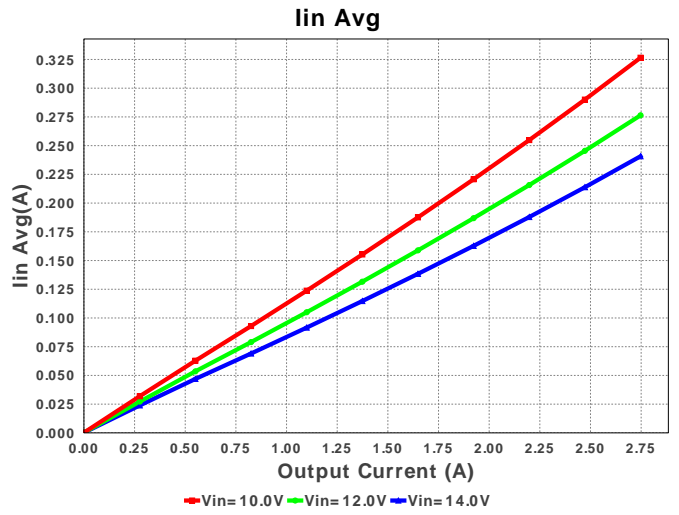
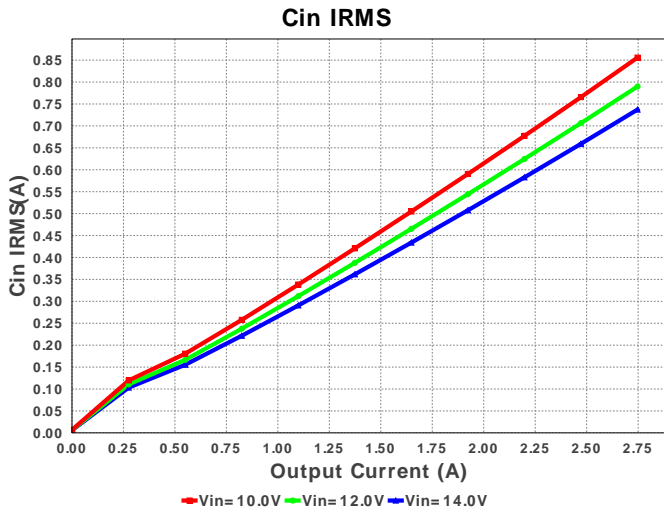
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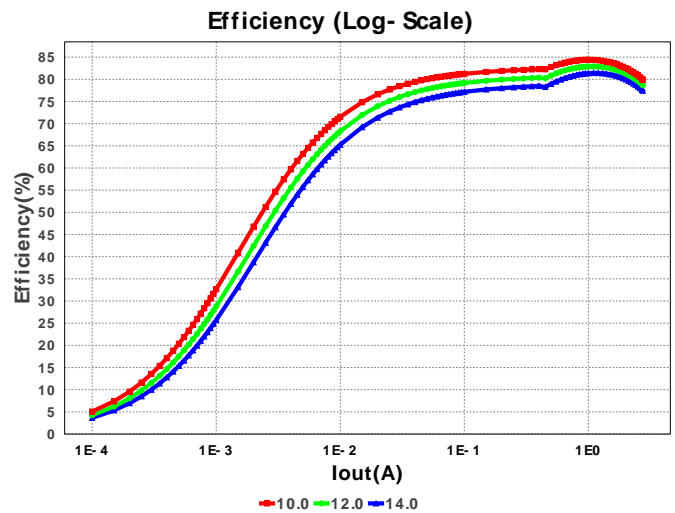
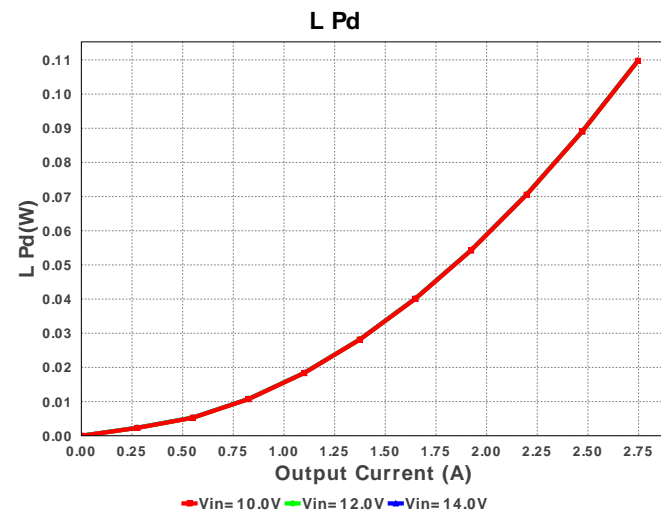
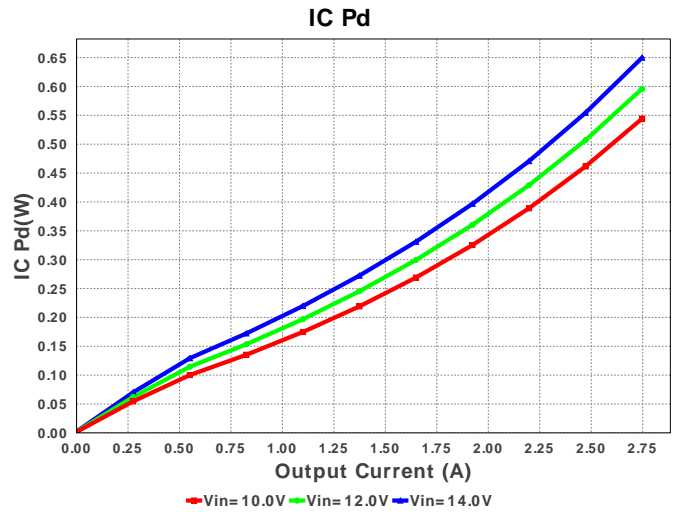
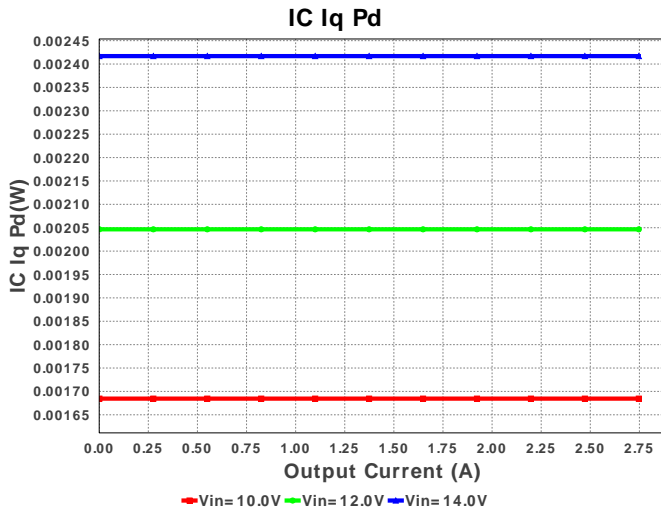


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbst	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm ²
2.	Cin	MuRata	GRM32ER61E226KE15L Series= X5R	Cap= 22.0 uF ESR= 2.0 mOhm VDC= 25.0 V IRMS= 3.67 A	1	\$0.16	 1210 15 mm ²
3.	Cout	TDK	C3216JB0J686M Series= 274	Cap= 68.0 uF VDC= 6.3 V IRMS= 0.0 A	1	\$0.32	 1206 11 mm ²
4.	L1	Coilcraft	XFL4020-152MEB	L= 1.5 uH DCR= 14.4 mOhm	1	\$0.55	 XFL4020 25 mm ²
5.	Rfbb	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
6.	Rfbt	Vishay-Dale	CRCW04022K49FKED Series= CRCW..e3	Res= 2.49 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
7.	U1	Texas Instruments	TPS563200DDCR	Switcher	1	\$0.52	 DDC0006A 10 mm ²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	737.261 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	280.704 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	240.75 mA	Current	Average input current
4.	L Ipp	972.39 mA	Current	Peak-to-peak inductor ripple current
5.	BOM Count	7	General	Total Design BOM count
6.	FootPrint	74.0 mm ²	General	Total Foot Print Area of BOM components
7.	Frequency	681.711 kHz	General	Switching frequency
8.	Pout	2.61 W	General	Total output power
9.	Total BOM	\$1.58	General	Total BOM Cost
10.	Vout OP	950.0 mV	Op_Point	Operational Output Voltage
11.	Duty Cycle	7.718 %	Op_point	Duty cycle
12.	Efficiency	77.427 %	Op_point	Steady state efficiency
13.	IC Tj	70.875 degC	Op_point	IC junction temperature
14.	ICThetaJA	62.9 degC/W	Op_point	IC junction-to-ambient thermal resistance
15.	IOUT_OP	2.747 A	Op_point	Iout operating point
16.	VIN_OP	14.0 V	Op_point	Vin operating point
17.	Vout p-p	2.698 mV	Op_point	Peak-to-peak output ripple voltage
18.	Cin Pd	1.087 mW	Power	Input capacitor power dissipation
19.	Cout Pd	0.0 W	Power	Output capacitor power dissipation
20.	IC Iq Pd	2.417 mW	Power	IC Iq Pd
21.	IC Pd	649.84 mW	Power	IC power dissipation
22.	L Pd	109.797 mW	Power	Inductor power dissipation
23.	Total Pd	760.823 mW	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	2.747	Maximum Output Current
2.	Iout1	2.747	Output Current #1
3.	VinMax	14.0	Maximum input voltage
4.	VinMin	10.0	Minimum input voltage

#	Name	Value	Description
5.	Vout	950.0 m	Output Voltage
6.	Vout1	950.0 m	Output Voltage #1
7.	base_pn	TPS563200	Texas Instruments Base Part Number
8.	source	DC	Input Source Type
9.	ta	30.0	Ambient temperature

Design Assistance

1. TPS563200 Product Folder : <http://www.ti.com/product/TPS563200> : contains the data sheet and other resources.

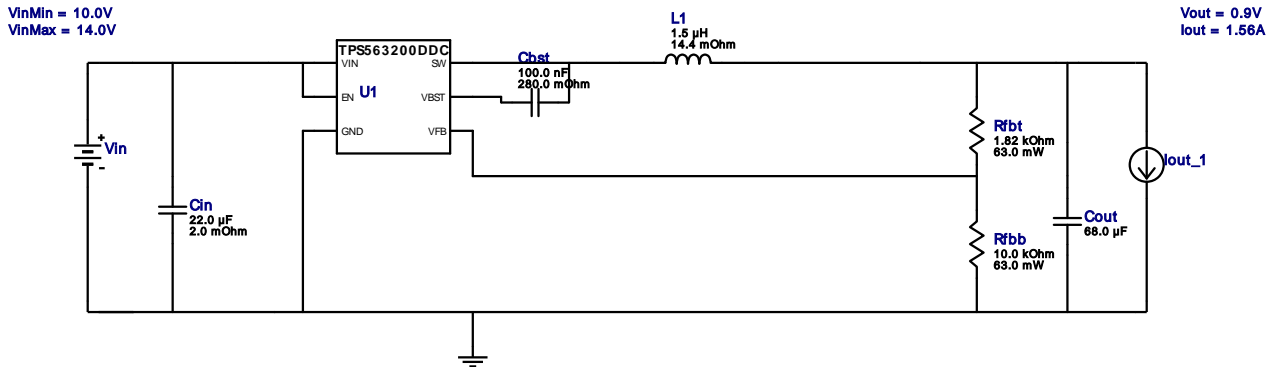


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 VinMax = 14.0V
 Vout = 0.9V
 Iout = 1.56A

Device = TPS563200DDCR
 Topology = Buck
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 Footprint = 74.0 mm²
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 Total Pd = 0.34W

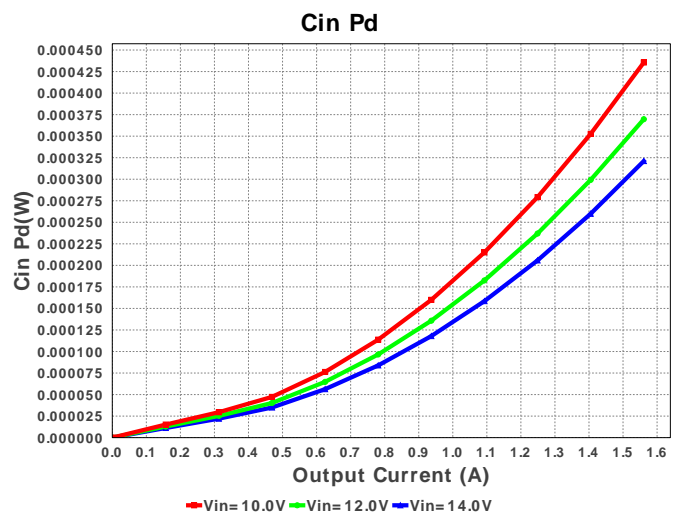
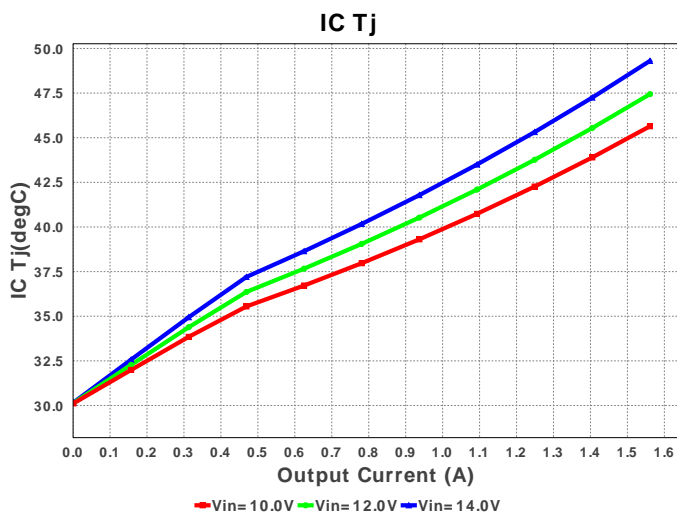
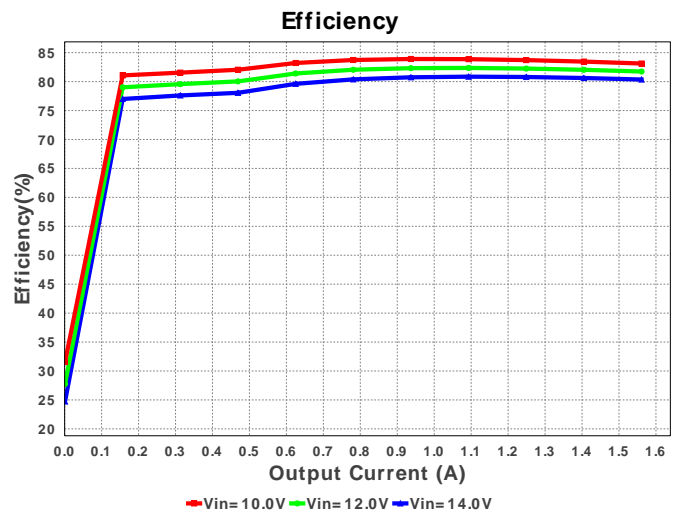
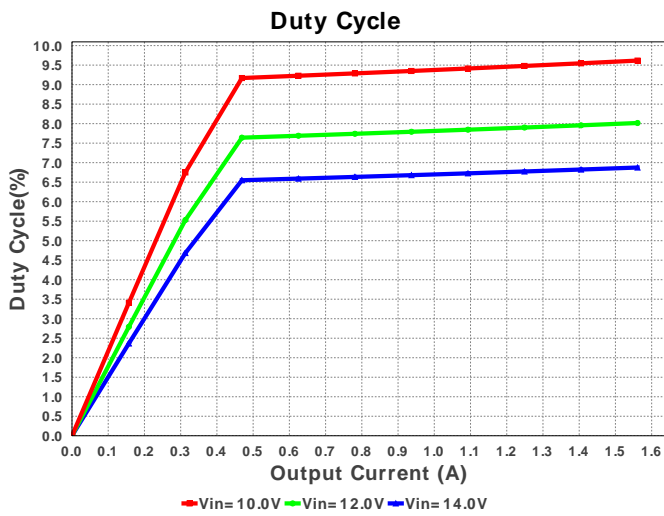
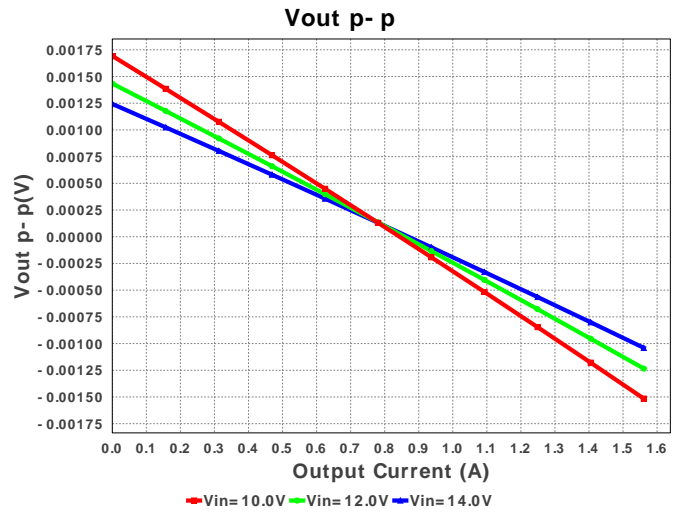
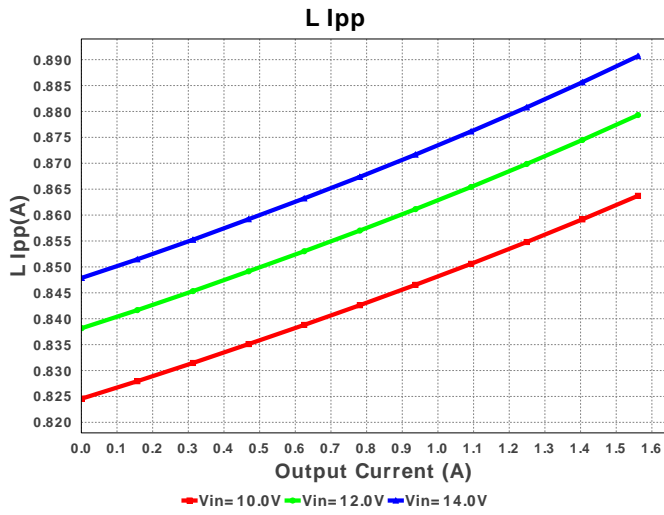
WEBENCH® Design Report

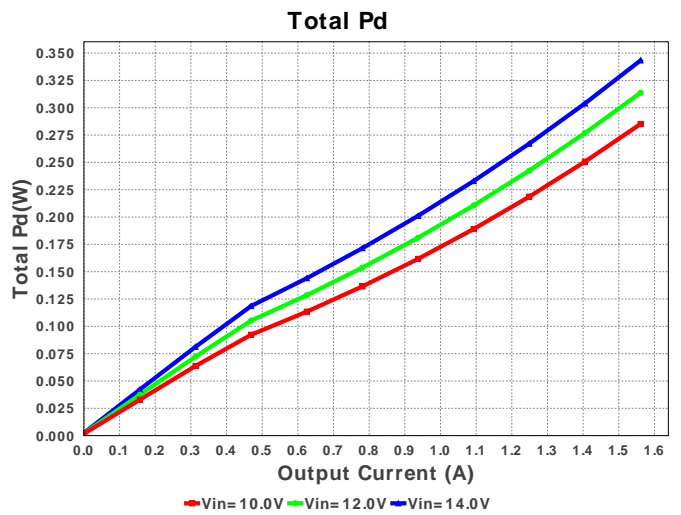
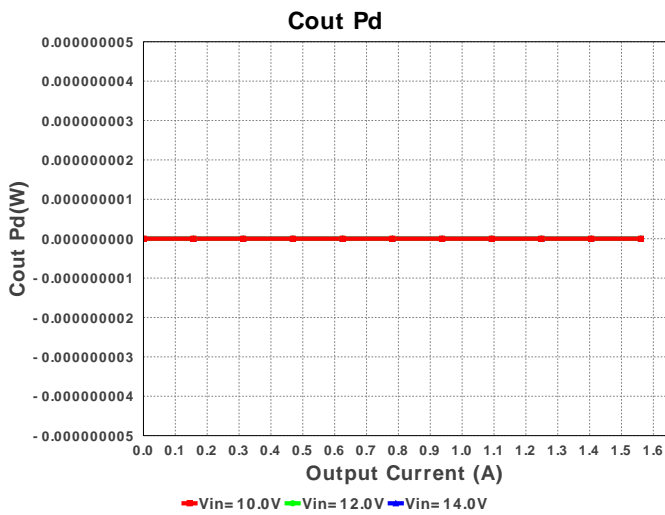
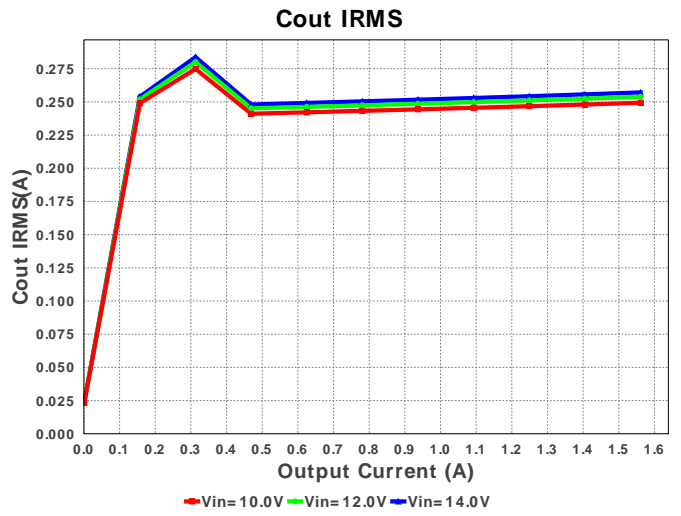
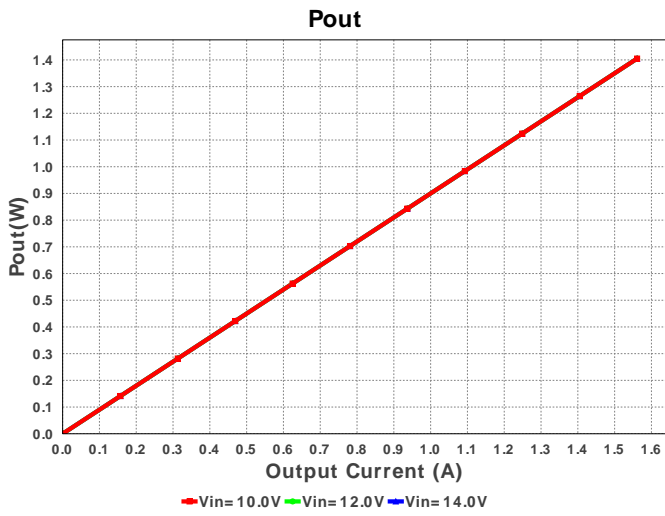
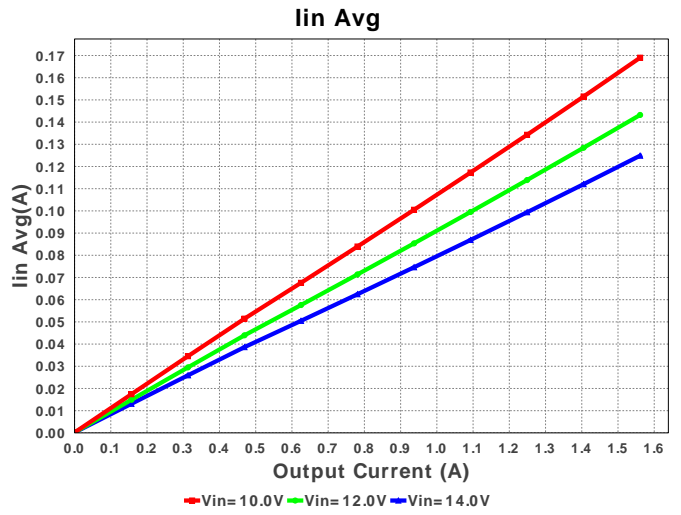
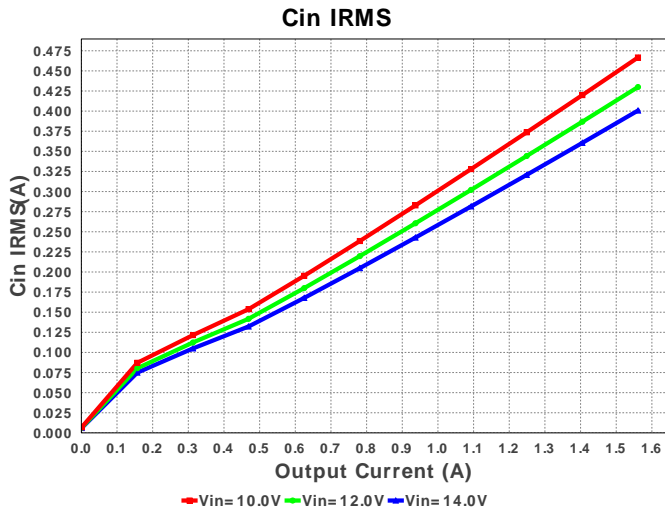
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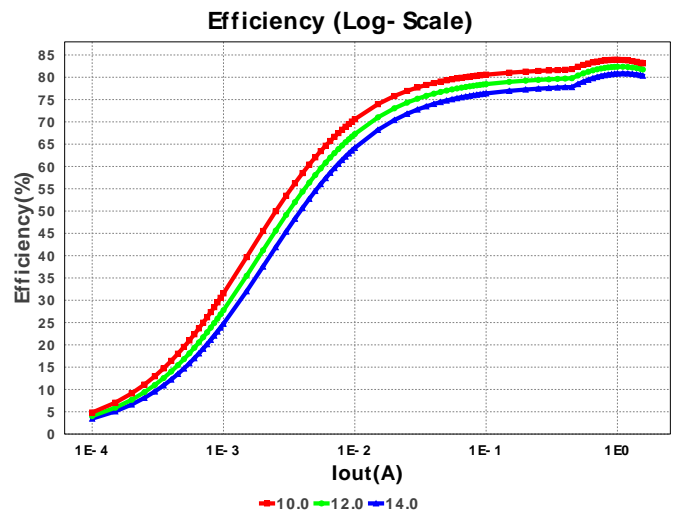
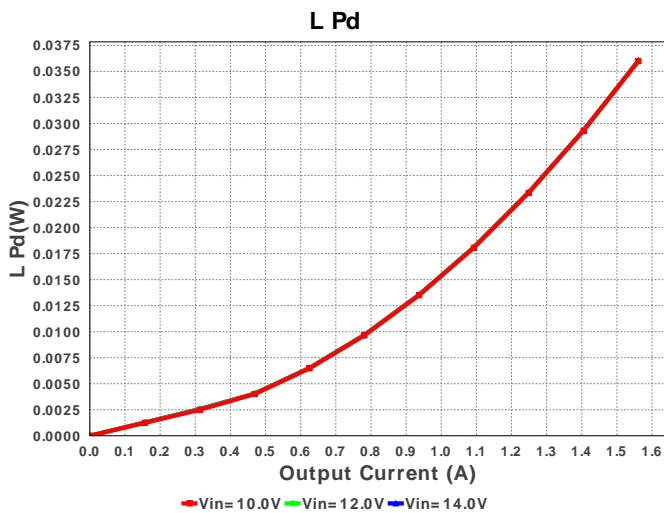
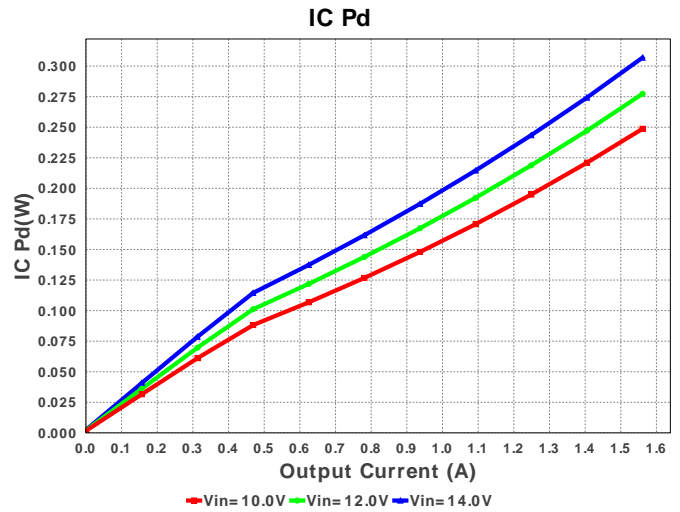
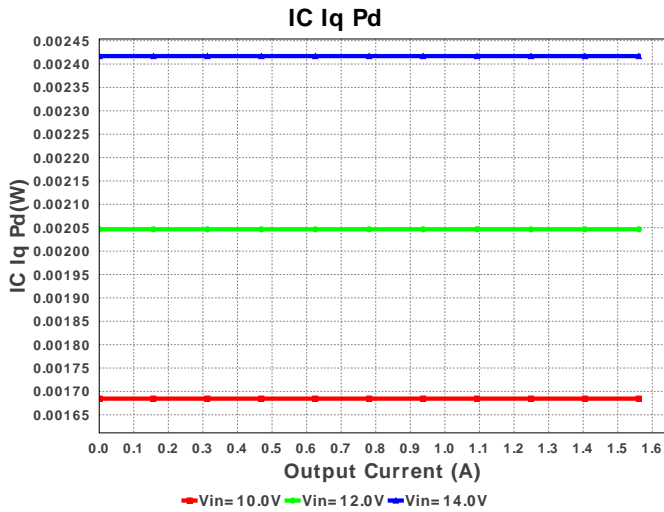


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbst	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
2.	Cin	MuRata	GRM32ER61E226KE15L Series= X5R	Cap= 22.0 uF ESR= 2.0 mOhm VDC= 25.0 V IRMS= 3.67 A	1	\$0.16	1210 15 mm ²
3.	Cout	TDK	C3216JB0J686M Series= 274	Cap= 68.0 uF VDC= 6.3 V IRMS= 0.0 A	1	\$0.32	1206 11 mm ²
4.	L1	Coilcraft	XFL4020-152MEB	L= 1.5 uH DCR= 14.4 mOhm	1	\$0.55	XFL4020 25 mm ²
5.	Rfbb	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
6.	Rfbt	Vishay-Dale	CRCW04021K82FKED Series= CRCW..e3	Res= 1.82 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
7.	U1	Texas Instruments	TPS563200DDCR	Switcher	1	\$0.52	DDC0006A 10 mm ²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	400.695 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	257.118 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	124.87 mA	Current	Average input current
4.	L Ipp	890.68 mA	Current	Peak-to-peak inductor ripple current
5.	BOM Count	7	General	Total Design BOM count
6.	FootPrint	74.0 mm ²	General	Total Foot Print Area of BOM components
7.	Frequency	669.236 kHz	General	Switching frequency
8.	Pout	1.405 W	General	Total output power
9.	Total BOM	\$1.58	General	Total BOM Cost
10.	Vout OP	900.0 mV	Op_Point	Operational Output Voltage
11.	Duty Cycle	6.875 %	Op_point	Duty cycle
12.	Efficiency	80.36 %	Op_point	Steady state efficiency
13.	IC Tj	49.305 degC	Op_point	IC junction temperature
14.	ICThetaJA	62.9 degC/W	Op_point	IC junction-to-ambient thermal resistance
15.	IOUT_OP	1.561 A	Op_point	Iout operating point
16.	VIN_OP	14.0 V	Op_point	Vin operating point
17.	Vout p-p	2.513 mV	Op_point	Peak-to-peak output ripple voltage
18.	Cin Pd	321.113 μW	Power	Input capacitor power dissipation
19.	Cout Pd	0.0 W	Power	Output capacitor power dissipation
20.	IC Iq Pd	2.417 mW	Power	IC Iq Pd
21.	IC Pd	306.919 mW	Power	IC power dissipation
22.	L Pd	36.041 mW	Power	Inductor power dissipation
23.	Total Pd	343.343 mW	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	1.561	Maximum Output Current
2.	Iout1	1.561	Output Current #1
3.	VinMax	14.0	Maximum input voltage
4.	VinMin	10.0	Minimum input voltage

#	Name	Value	Description
5.	Vout	900.0 m	Output Voltage
6.	Vout1	900.0 m	Output Voltage #1
7.	base_pn	TPS563200	Texas Instruments Base Part Number
8.	source	DC	Input Source Type
9.	ta	30.0	Ambient temperature

Design Assistance

1. TPS563200 Product Folder : <http://www.ti.com/product/TPS563200> : contains the data sheet and other resources.

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